

BLUE MOUNTAINS CITY COUNCIL

Weed Management Strategy 2010



Blue Mountains City Council acknowledges that the City of Blue Mountains is located on the traditional lands of Darug and Gundungurra peoples.

In addition, Blue Mountains City Council (BMCC) recognises the unique position Aboriginal people have in the history and culture of the Blue Mountains. It is acknowledged that Aboriginal peoples in the Blue Mountains have strong and ongoing connections to their traditional lands, cultures, heritage and history. Aboriginal people are recognized as the "Traditional Owners of the Land" and it is important that this unique position is incorporated into BMCC's community protocols, official ceremonies and events.

BMCC's acknowledgement and observance of Aboriginal cultural protocols demonstrates respect and commitment to equal partnerships with the local Aboriginal and Torres Strait Islander community.

Thanks to Barbara Harley, Amanda Hunt and Hilary Cherry for the provision of photos within this document.



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INTRODUCTION

In 2001 Blue Mountains City Council formally adopted its first weed strategy. The 2001 Weed Strategy has been the basis for Council's weed management programs in the past 9 years.

Over this time the national approach to weed management has evolved to embrace more strategic use of resources to protect environmental and community assets. Council and other local land management agencies have developed co-operative weed management programs across the landscape, focusing resource allocation on the highest value assets.

Community has high expectations of Council bushland and weed management programs but limited understanding of Council's multiple responsibilities and priorities. This document presents an explanation of why and how Council deals with weed management issues in the local government area and provides a framework for accountability for the next five years.

This updated weed strategy responds to the current weed management environment and outlines how Council is addressing these new issues and challenges.

SUMMARY

The weed management issues facing Blue Mountains City Council are unique. The Blue Mountains Local Government Area (LGA) consists of a long, linear development area amid an expanse of World Heritage listed National Park, which is directly affected by nutrient-enriched runoff from urban areas. Weeds are a symptom of this process and consequently one of the biggest threats to biodiversity in the Blue Mountains LGA.

The magnitude of this Environmental Weed problem is enormous, though not always obvious to the untrained eye. Despite the fact that Council and the Federal and State Governments devote considerable resources to weed management, it is not possible or practical to plan to eradicate all weeds from the Blue Mountains. Council's weed management programs must focus on a long term, strategic approach which protects key assets and involves co-operation with all landowners to achieve high level, sustainable weed control outcomes.

Council has to make difficult choices about how to best use its resources to maximise benefit for the community and meet obligations for the protection of the environment.

A major emphasis that emerges from the discussion is the need to address the causes of the problems not just the symptoms. It is also essential for programs to be implemented in accordance with agreed priorities and cross tenure programs which involve private landowners and other government agencies are crucial to sustained weed control success.

This document describes local weed issues and relates national and state government and regional targets to local weed management. It describes the basis of a strategic approach which divides the area into conservation landscape units which are subdivided into sub-catchments in which intensive works are programmed involving the community, Council weeds teams and contractors, regional partners and other land managers. Other Council programs and services including development assessment and environmental education also have a role in achieving weed control and awareness.

The strategy adopts three targets:

1. Reduce impacts of existing weeds;
2. Prevent establishment of new weed species; and
3. Enhance Council and community capacity to solve weed problems.

Based on these broad targets, recommendations are made for specific strategic objectives and actions (Section 3) to address the issues identified in the discussion document. Highest priority is given to protection of key conservation assets within target landscapes. Resources are also allocated to target weeding and addressing disturbance factors across the local government area, responses to new weed species and addressing community requests. Development of community education and capacity to support weed management continue to be strongly supported

BACKGROUND

2001 WEED STRATEGY

In 2001 Council formally adopted its first Weed Strategy. This has been successfully implemented for the past nine years as demonstrated by a review of the key performance indicators for the 2001 strategy (Table 1).

2001 Key indicator	Progress 2001 to 2010
Baseline condition information for biophysical criteria will include weed infestation data as a measure of bushland condition across the City by June 2004.	Blue Space Stage 1 and Stage 2 weed mapping completed on all public land in LGA in 2004. Ongoing weed mapping data capture by BMCC field teams as basis for forward planning of weed control programs.
Annual programs maintain focus on priority species in accordance with specified targets of eradication or containment.	Key target weeds such as Gorse and Salvinia have been reduced to maintenance levels across the LGA.
Selected (priority) catchments show a measurable improvement in bushland condition.	Over 200 ha of council and private land weed infestation have been reduced to minimal (maintenance) levels.
The level of grant funding and government agency funding directed at weed control in the Blue Mountains.	Over \$2.1m has been obtained from State and Federal government sources to assist Council and the community to control weeds.
The implementation of support and incentive schemes for weed control by private landowners.	Resident Weed Support, Landcare and Bush Backyards programs established as core Council services.
Participation rates, external funding, areas treated under the Bushcare program.	Over 30 new Bushcare/ Landcare volunteer groups have been set up to assist Council in managing weeds, resulting in the input of 72,000 hours volunteer labour.

Table 1: 2001- 2010 achievements against key performance indicators of BMCC Weed Strategy 2001

A review of the existing 2001 Weed Strategy has been undertaken with the key findings being:

- Considerable investment has reduced the range and density of a number of key weed species, but weeds continue to pose one of the most significant threats to our local biodiversity and the World Heritage Area;
- Complete weed eradication is an ultimate goal but strategic allocation of limited funds is the only practical way forward;
- High levels of community concern about weed control and protection of bushland are matched by good levels of satisfaction for Council's bushland protection and bush regeneration services but unsatisfactory approval ratings for weed control service
- There have been numerous policy and legislative changes at a State and Federal Government level in relation to weed control;
- There is a new and expanded role for Regional Weed Committees that strongly emphasises regional partnerships between Councils and other public authorities;

- Catchment Management Authorities have emerged with a major role in delivery of regional biodiversity conservation and weed management funding and
- New requirements to reflect Council's increasingly strategic focus towards weed control to maximise environmental outcomes while increasing efficiency and reducing long term maintenance costs.

SUSTAINABLE BLUE MOUNTAINS - 25 YEAR VISION – THE COMMUNITY STRATEGIC PLAN

The updated Weed Strategy supports the priorities and aspirations of the Blue Mountains community for the future by contributing to the following 2010-2025 objectives and strategies in Sustainable Blue Mountains 2025:

- The diversity of native fauna and flora is maintained
 - Protect and nurture the different flora, fauna and ecological communities of the Blue Mountains
 - Manage the urban- bushland interface to minimise urban development impacts
- The health of waterways and water catchments is maintained and enhanced
 - Care for waterways and catchments
- The impact of development on the built and natural environment is managed
 - Reduce urban development impacts on the environment

WEED MANAGEMENT VISION AND OUTCOMES 2010-2015

2010 vision and outcomes have not substantially changed from the 2001 goal and objectives.

VISION

The impacts of weeds upon the natural environment, economy and human health of the Blue Mountains community is understood throughout the community and minimised by integrated programs across all land tenures.

OUTCOMES

- Minimise the threat to biological diversity of all bushland;
- Protect at-risk threatened species, threatened ecosystems, endangered habitats;
- Manage weeds in accordance with National and State government targets and legislation and regional and local priorities;
- Adopt an integrated approach and address the cause not just the symptoms;
- Improve the effectiveness and efficiency of weed control programs; and
- Achieve a better alignment between community expectations and planned service levels.

TARGETS

1. Reduce impacts of existing weeds;
2. Prevent establishment of new weed species; and
3. Enhance Council and community capacity to solve weed problems.

Strategic objectives (pp: 56-58), based on these targets, have been established to provide a framework to guide the formulation and implementation of actions (Five Year Action Plan, pp:59-73) that deliver on the outcomes.

MEASURING PROGRESS

Progress on the Five Year Action Plan will be reviewed regularly against performance indicators to measure effectiveness in achieving strategic objectives. Annual actions will be reported on within the annual report of Council activities, Environment Levy reporting and the State of Environment Reporting.

A report to Council will be provided at the end of the five year period to summarise implementation and achievements of actions and key performance indicators against outcomes and strategic objectives.

THE SIGNIFICANCE OF WEEDS IN THE BLUE MOUNTAINS

Environmental weeds and their causal agents are considered to be one of the greatest threats to biodiversity and ecosystem function in the Blue Mountains.

Environmental weeds may be defined as those introduced plants, both exotic and non-endemic native species, which have invaded natural ecosystems in the Blue Mountains. Significant components of emerging weeds in the Blue Mountains are non-local native species.

Environmental Weeds include, but are not restricted to species listed under the *Noxious Weeds Act 1993*.

Weeds have been classified into three distinct classes based upon the level of threat that they pose to ecosystems (Mulvaney, 1997). These terms are used because they are the major criteria for determining the significance of weeds and the level of resources that should be applied in their control.

- **Ecosystem transformers** – can dominate and destroy a native vegetation community very quickly (10 years).
- **Invasive** – are highly mobile within a native vegetation community but do not have the immediate potential to alter it.
- **Naturalisers** – reside mainly on the edge of native vegetation communities and have little potential to be highly invasive or ecosystem transforming.

Some species, such as Radiata Pine, are listed as Naturalisers at shorter time scales (10 years) but could be considered Ecosystem Transformers at longer time scales (100 years).

Environmental weeds are often a symptom of other degrading impacts on bushland such as high nutrient stormwater runoff, erosion and sedimentation and clearing. Some weed species can also invade undisturbed bushland. Once established the weed populations also become a degrading factor which further alters environmental conditions to promote increased native vegetation loss.

Adverse impacts of environmental weeds include:

- Competition with local native plants for sunlight, moisture and nutrients;
- Inhibition of the native plant germination;
- Alteration of the habitat for endangered species;
- Encouraging more frequent and intense fires;
- Changes to soil characteristics such as nutrient cycles, pH, moisture and microbiology;
- Increase nutrient levels in water and lower levels of oxygen to the point that it threatens or kills fish and other aquatic fauna; and
- Degraded landscape values and impeded access which impacts on urban amenity and tourism.

Agricultural weeds are plants that represent a threat to agricultural production. Weed control is a significant component of the running costs of most farmers.

Adverse impacts of agricultural weeds include:

- Competition with crops and pasture to reduce the areas available for grazing and cultivation;
- Reduced quality of produce;
- Interference to access and farm infrastructure;
- Harbour for feral animals;
- Poisoning of stock; and
- Degraded landscape values and impeded access which impacts on amenity and tourism.

The expansion of Council's weed management programs since the adoption of the 2001 Weed Management Strategy has aimed to minimise the threats to bushland biodiversity and agricultural production and to control the spread of noxious weeds in accordance with State Government legislation. Those programs have made substantial gains in the control of several of those weeds with the greatest potential to invade areas of healthy bushland and agricultural land.

For much of the Blue Mountains LGA, weed priorities are targeted at managing threats to natural biodiversity and natural processes. This is particularly relevant given our proximity to the World Heritage listed National Park, and substantial areas being part of the City of Sydney water catchment area. In rural areas such as the Megalong Valley, weed priorities are based on threats to agricultural productivity, eco-tourism, and biodiversity.

WEED SPREAD IN THE BLUE MOUNTAINS

There are currently over 400 weed species known to occur in the Blue Mountains. Some of these are well established and widespread. Others are relatively recent introductions in small populations which still have the potential to spread into new areas.

A substantial proportion of weeds in the Blue Mountains have their origins as garden plants.

The climate of the upper mountains creates a cool temperate environment that is restricted to areas in South Eastern Australia. Over the last 130 years the residents of the area have been planting many exotic species to the point that the Blue Mountains have become renowned for its cool climate cottage gardens. A number of these species have now escaped into the neighbouring bushland.

In the lower mountains the climate is hotter and drier encouraging a different suite of weed species many of which are also garden escapes.

Some weed species were originally planted for a particular purpose such as soil stabilization. Weed propagules were likely to have been inadvertently introduced on vehicles, clothing, or soil from areas where an infestation exists.

A major source of weeds is stormwater runoff, which concentrates propagules in moist, disturbed environments. Other species are spread by birds moving between gardens and bushland. Many weeds are also inadvertently spread by landscapers, construction contractors and the community by the introduction of contaminated soils, aggregates, agricultural and horticultural products.

Major causes of weed spread in the mountains are:

- Disturbance, of any form, in natural areas;
- Plants escaping from gardens;
- Dumping of waste, particularly garden and construction waste, in bushland;
- Wind and vehicle transport of seeds along the highway and railway corridors;
- Use of weed contaminated soil or horticulture products;
- Use of contaminated hay or other stock feed, and spread from faeces or fur of stock;
- Planting of exotic species into public reserves by residents and government authorities;
- Spread of weed seed on clothing, socks, cuffs, jumpers and boots of bushwalkers;
- Nutrient-enriched runoff from sources such as stormwater, septic tanks, sewerage overflows, pet wastes, washing of cars, and fertiliser runoff;
- Utility easements through sensitive areas, associated access roads and slashing, cause disturbance, open up native vegetation, and provide a foothold for weed invasion; and
- Poor vegetation management practices such as over clearing, slashing and trampling by public land management authorities, developers, recreationalists and the community.



Figure 1: Silt laden storm water carries weeds and associated impacts into bushland in North Leura.

THE WEED MANAGEMENT AREA

Blue Mountains City Council exercises weed control responsibilities over very large areas. The entire Blue Mountains Local Government Area (LGA) is 143,200 ha. The Blue Mountains National Park covers 106,100 ha. The remaining 37,160 ha is in the Council area, which includes 342 km of interface with the National Park.

Within the LGA Council manages:

- 6,000 ha as a direct land manager, including 4,000 ha of bushland reserves;
- 4,435 ha of Crown land in a monitoring, planning and implementation support role; and
- 22,000 ha of private land in a monitoring, planning, assistance and regulatory role.

A significant proportion of this land is zoned Environmental Protection (EP) which denotes environmentally sensitive land managed primarily for the protection of the natural environment. 7652 ha of EP land is on private property and there is 4855 ha on Council managed land.

The LGA can be broadly classified into four conservation landscapes which represent distinct vegetation types based on similar geological and climatic conditions:

- Blue Mountains Plateau landscape - Lawson to Mt Victoria / Bell;
- Lower Blue Mountains Shale- Sandstone landscape - Faulconbridge to Lapstone;
- Moist Basalt Cap landscape – Mt Wilson, Mt Irvine and Mt Tomah; and
- Megalong Valley Granite- Sandstone landscape – Megalong Valley.

Each landscape supports distinct flora and fauna conservation values which require protection (see Appendix 2: Conservation Assets in each Landscape Unit). Significant weed species also vary between landscapes in response to the range of vegetation types, land uses and local climates and soils. Council's weed management priorities focus on protection of the identified biodiversity values and control of the most environmentally and economically significant weed species in each landscape.

While the Weed Management Strategy focuses heavily on the protection of the natural environment from the impact of weeds, Council also has a role to play in control of weeds on lands managed for:

- Residential, Industrial, and Commercial uses;
- Tourism, and ecotourism activities;
- Waste disposal and other Operational land;
- Transport corridors and other utility easements;
- Farming, grazing, cropping, and horticulture;
- Parks, reserves, and other Community land; and
- Sport and recreation, and is the local control authority for noxious weed control across the local government area.

Each of these land uses has its own particular and unique suite of weed problems and priorities. No single weed management approach can be applied equally to all areas.



Section 1: POLICY AND LEGISLATION

This section identifies the hierarchy of regulation and government policy which directs Council decision making in relation to weed management.

1.1 NATIONAL WEED MANAGEMENT

A hierarchy of weed strategies developed by the Federal and State governments, regional natural resource managers such as the Hawkesbury-Nepean and Sydney Catchment Management Authorities and local government informs the allocation of the three tiers of government investment in weed control in the Blue Mountains Local Government Area. It also provides for a consistent framework for co-operative programs across various levels of government and the community.

The Australian Weed Strategy

The Australian Weeds Strategy (2006) (replaces the National Weed Strategy 1997) provides a framework for weed management across the nation with the aim of minimising the impact of weeds on Australia's environmental, economic and social assets.

The Australian Weeds Strategy identifies the following goals:

Goal 1: Prevent new weed problems

Goal 2: Reduce the impact of existing priority weed problems

Goal 3: Enhance Australia's capacity and commitment to solve weed problems



Figure 2: Boneseed is a Weed of National Significance (WoNS) and a Class 3 Noxious Weed.

Weeds of National Significance

Weeds of National Significance (WoNS) are the priority species for sustained nationally coordinated action under the Australian Weeds Strategy. Weeds of National Significance status will bring a weed species under co-ordinated national management involving various stakeholders including local government, for the purpose of preventing further impacts, reducing or restraining its spread and/or eradicating it from parts of Australia.

There are currently 20 WoNs identified through a weed risk assessment process as having a national impact on Australia's productive capacity and natural ecosystems. These weeds are regarded as the worst weeds in Australia because of their invasiveness, potential for spread, and economic and environmental impacts.

Each WoNS has a strategic plan that outlines strategies and actions required to prevent spread and reduce impact of the weed and identifies responsibilities for each action. Individual landowners and managers are ultimately responsible for managing WoNS. State and territory governments are responsible for overall legislation and administration. Federal government grant funding for weed control programs is often targeted to achieving WoNS strategic goals.

Ten WoNS species occur in the Blue Mountains LGA. These include Alligator Weed, Boneseed, Blackberry, Bridal Creeper, Cabomba, Gorse, Lantana, Salvinia, Serrated Tussock and Willows. The WoNS lists are currently being reviewed. As a result new WoNS will be added to the list and several of the current WoNS will be phased down to reduced levels of national co-ordination.

Implications for strategy

- Weed control programs place appropriate emphasis on WoNS & reflect relevant priorities & actions in specific WoNS strategies;
- Incorporate national targets into local weed management programs where appropriate, acknowledging that some local priorities are not accounted for in the national strategy; and
- Access grant funding when available to complement Council's core weed programs where national priorities intersect with local targets.

1.2 STATE WEED MANAGEMENT

The NSW Invasive Species Program reflects the National Plan with four goals.

Exclude – prevent the establishment of new invasive species.

- Identify species and thoroughly assess potential invasiveness;
- Implement effective barriers to prevent their establishment;
- Develop species risk assessment framework; and
- Identify high risk pathways for introduction of new weeds and mitigate identified risks of spread.

Eradicate or contain – eliminate or prevent the spread of new invasive species.

- Develop and deploy effective and efficient ways to eradicate or contain an introduced species before it becomes widespread.

Effectively manage – reduce the impacts of widespread invasive species.

- Identify where invasive species are having the most impact on primary industry, the environment and human health or infrastructure;
- Manage or control these species to reduce their impact where benefits of control are greatest; and
- Support cooperative programs that use integrated management across all tenures.

Capacity – ensure NSW has the ability and commitment to manage invasive species.

- Develop the knowledge, skills, resources and systems to address the impacts of invasive species including public land managers, landowners and community groups and volunteers.

The Plan identifies a number of key stakeholders who will implement specific actions. Those of particular relevance to Council's role are:

Invasive Species Unit of Industry and Investment NSW (I & I NSW)

- Leads the implementation of the NSW Invasive Species Plan;
- Administers legislation relevant to noxious weeds and vertebrate pests;
- Provide education and training resources for weeds, invertebrate and vertebrate pests; and
- Fosters invasive species awareness within NSW's primary industries.

The Department of Environment, Climate Change and Water (DECCW)

- Develops and implements management strategies for invasive species on lands managed under the *National Parks and Wildlife Act 1974*; and
- Develops, coordinates and reports on state-wide initiatives to reduce the impacts of invasive species on biodiversity. Such initiatives include Threatened Species Priorities Action Statements and individual threat abatement plans for invasive species.

Local weed control authorities (Local Councils and County Councils)

- The implementation of noxious weed control (under the *Noxious Weeds Act 1993*) including: enforcing the act, conducting inspections, controlling weeds on lands managed by them;
- Developing regional and local weed strategy and policy; and
- Providing education, training and resources for both the public and for staff.

Other government land managers

- The development and implementation of pest management strategies; and
- The education of the community and other stakeholders.

Industry

- Managing potential trading of known invasive species e.g. nursery, agriculture and horticulture sectors; and
- Prevent pathways for invasive species establishment through movement of goods, produce and equipment or related activities.

Special interest groups and community organisations

The Plan recognises the important role community volunteers and special interest groups play in the management of invasive species in NSW, by providing thousands of hours each week assisting in the management of private and public lands through direct invasive species control and monitoring activities and related support activities.

Implications for strategy

- Conform to the NSW Strategy where appropriate, acknowledging that some local priorities are not adequately addressed in the upper level hierarchical strategies of the state strategy. Local government is particularly well placed to deliver on biodiversity conservation and awareness and incentive targets in a manner which is appropriate to the local environment and community.
- Broadly conforming to the NSW Strategy will:
 - Facilitate co-operative weed management across tenures and other government agencies;
 - Maximise access to additional funding; and
 - Ensure Council fulfils its statutory obligations.

Noxious Weeds Legislation

Blue Mountains City Council is a Local Control Authority under the NSW *Noxious Weed Act 1993* which entails:

- Control of noxious weeds on Council managed land;
- Control of noxious weeds on Council managed Crown land;
- Private property noxious weeds inspections on privately owned land;
- Enforcement of noxious weeds legislation on private land;
- Develop, implement, co-ordinate and review regional and local strategy and programs in relation to noxious weed control; and
- Liaison with other public authorities on noxious weed issues on public authority land.

Noxious Weeds are those plant species declared by Industry and Investment NSW (I & I NSW) (formerly the NSW Department of Primary Industries) under the *Noxious Weeds Act 1993* (Appendix 1: Blue Mountains noxious weeds list). Declarations are based on the threat posed by a particular weed to human health, agricultural productivity, built structures, or natural environments. Johnson and Downey (2008) state that 37% of weeds listed as noxious in NSW are principally managed for their environmental impacts, compared to 50% managed for impacts on agricultural production and 11% for both. "There are around 350 major environmental weeds in NSW, and since declaration only accounts for 25% of those present in NSW, many environmental weeds are not listed" (Johnson and Downey 2008).

There are five noxious weed control categories under the *Noxious Weeds Act 1993*. They range from **Class 1** to **Class 5**, where **Class 1** is seen as the highest control priority.

Weed Classes	
Class 1	<i>Plants that pose a potentially serious threat to primary production or the environment and are not present in the State or are present only to a limited extent.</i>
Class 2	<i>Plants that pose a potentially serious threat to primary production or the environment of a region to which the order applies and are not present in the region or are present only to a limited extent.</i>
Class 3	<i>Plants that pose a potentially serious threat to primary production or the environment of a region to which the order applies, are not widely distributed in the area and are likely to spread in the area or to another area.</i>
Class 4	<i>Plants that pose a potentially serious threat to primary production, the environment or human health, are widely distributed in an area to which the order applies and are likely to spread in the area or to another area.</i>
Class 5	<i>Plants that are likely, by their sale or the sale of their seeds or movement within the State or an area of the State, to spread in the State or outside the State.</i>

Table 2 outlines the most common control measures for these categories.

Table 2: Noxious Weeds Act 1993 control categories

Control Category	Action to be taken
Class 1*	<i>The plant must be eradicated from the land and the land must be kept free of the plant state-wide.</i>
Class 2*	<i>The plant must be eradicated from the land and the land must be kept free of the plant regionally.</i>
Class 3	<i>The plant must be fully and continuously suppressed and destroyed.</i>
Class 4	<i>The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed.</i>
Class 5*	<i>There are no requirements to control existing plants of Class 5 weeds.</i>

* Weeds in these categories are "notifiable"

Council has developed Weed Management Plans for all Class 4 Weeds (available through Council's website) I & I NSW has invited all local control authorities to assess the declaration of all Class 4 Weeds using the NSW Weed Risk Management system (see Appendix 1: State Priorities – Noxious Weeds) as part of the five year statutory review of all declarations due in 2011.



Figure 3: A well recognised weed, Blackberry is a Class 4 Noxious Weed in the Blue Mountains.

The power to direct private landowners to control noxious weeds where voluntary compliance is unable to be achieved is crucial to the success of weed control programs throughout the Local Government Area (LGA) and the National Park. The Council has the ability to nominate for changes to the Noxious Weed list or their class status, and must follow the process outlined in the next section. Proponents must demonstrate that there is a reasonable and enforceable means of control for weed species nominated for listing as noxious. Johnson & Lisle (2009) states that, "Declaration of a plant as noxious will result in enforced control. The benefits of this enforced

control to all residents of NSW must be considered to see if these outweigh the costs and impacts of enforcing this control."

The Noxious Weeds Declaration Process

The process of declaring a plant as "Noxious" under the *Noxious Weeds Act 1993* has three key components. These are;

Operational Assessment – this is collection of all the relevant information on the plant such as distribution, physiology, impacts, control techniques and cost of control estimates.

Regional Plan – this is a plan of how declaration is going to translate into good strategic control programs. A species-specific plan must sit under a Regional Strategy and clearly demonstrate how it is to be implemented. The plan should include aspects such as stakeholder consultation, aims, objectives, a monitor and review process and a clear justification on costs and benefits.

Technical Assessment – this is the use of the NSW Weed Risk Management System which uses an objective set of criteria to assess which plants are of greatest concern. This analysis is scientifically rigorous, repeatable and best-practice. The key elements of the system are outlined in Figure 1.

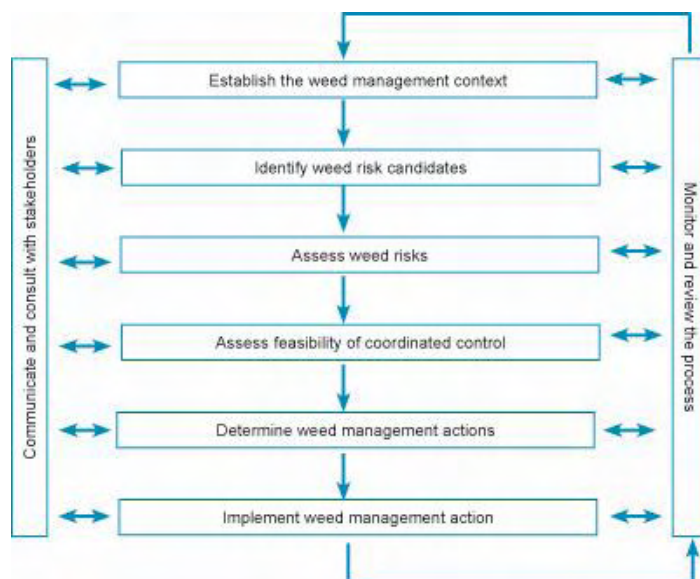


Figure 4: The key elements of the WRM System (from Johnson / Lisle, 2009)

Once an application for declaration is prepared by a Local Control Authority (such as BMCC) it is lodged with I&I NSW. The State Weed Control Coordinator and relevant staff will perform the operational and technical assessments and prepare a paper for the Noxious Weeds Advisory Committee (NWAC). This committee's role is to advise the Minister for Primary Industries, who is the chief decision maker in the process.

Table 3: Noxious Weeds listed and known to occur in the Blue Mountains

Control Category	Common Name	Botanical Name	Known Distribution
Class 1	Horsetail Hawkweed	<i>Equisetum</i> spp <i>Hieraceum</i> spp	Wentworth Falls-Leura, Mt Tomah Mt Irvine, Katoomba
Class 2	Alligator Weed Salvinia Water Hyacinth	<i>Alternanthera philoxeroides</i> <i>Salvinia molesta</i> <i>Eichhornia crassipes</i>	Glenbrook Creek, Lapstone Creek, Woodford, Katoomba Glenbrook Lagoon Nepean R, Emu Heights-Yellow Rock, Springwood
Class 3	Gorse Boneseed Green Cestrum Pampas Grass Long-leaf Willow Primrose Grey Sallow	<i>Ulex europaeus</i> <i>Chrysanthemoides monilifera</i> ssp. <i>monilifera</i> <i>Cestrum parqui</i> <i>Cortaderia</i> spp. <i>Ludwigia longifolia</i> <i>Salix cinerea</i>	Mt Victoria, Megalong Valley, Blackheath, Mt Wilson, Blaxland Springwood- Medlow Bath Blaxland – Yellow Rock Whole of LGA Isolated infestation at Lawson Glenbrook, Linden – Mt Victoria, Megalong Valley, Mt Tomah
Class 4	Asparagus Fern Bathurst Burr Noogoora Burr Blackberry Camphor Laurel Cape Broom Chilean Needle Grass Crofton Weed Giant Reed Montbretia Patersons Curse Prickly pear Rhus Tree Privet - Large-leaf Privet - Small-leaf Rhizomatous Bamboo Scotch/English Broom Serrated Tussock St Johns Wort	<i>Asparagus densiflorus</i> <i>Xanthium spinosum</i> <i>Xanthium</i> spp. <i>Rubus fruticosus</i> agg. spp. <i>Cinnamomum camphora</i> <i>Genista monspessulana</i> <i>Nassella neesiana</i> <i>Ageratum adenophora</i> <i>Arundo donax</i> <i>Crocosmia x crocosmiiflora</i> <i>Echium</i> spp. <i>Opuntia</i> spp <i>Toxicodendron succedaneum</i> <i>Ligustrum lucidum</i> <i>Ligustrum sinense</i> <i>Phyllostachys</i> spp <i>Cytisus scoparius</i> <i>Nassella trichotoma</i> <i>Hypericum perforatum</i>	Lapstone – Wentworth Falls Isolated infestation at Springwood, Blaxland, Megalong Valley Whole of LGA Lapstone - Leura Mt Wilson, Lapstone - Mt Victoria Katoomba Bell- Berambing, Mt Tomah, Lapstone - Katoomba Lapstone – Katoomba Whole of LGA Faulconbridge - Mt Victoria, Bell, Megalong Valley Glenbrook, Wentworth Falls, Megalong Valley Lapstone – Katoomba Whole of LGA Whole of LGA Whole of LGA Whole of LGA Megalong Valley, Blackheath, Bell, Wentworth Falls Whole of LGA
Class 5	Bridal Creeper Cabomba/Fanwort Lantana Willows	<i>Asparagus asparagoides</i> <i>Cabomba caroliniana</i> <i>Lantana camara</i> <i>Salix</i> spp. except <i>S. babylonica</i> , <i>S. reichardii</i> , <i>S. calodendron</i>	Glenbrook- Wentworth Falls Glenbrook Lagoon Lapstone - Faulconbridge Whole of LGA

Noxious Weed Grant Funding

I&I NSW allocates funds to local control authorities to assist in the coordination and control of noxious weeds. It does this via the NSW Weeds Action Program. The strategy used to allocate funding is strongly aligned to the NSW Invasive Species Plan, and has the following key features:

- assist in the timely detection of new weed incursions;
- affect a quick response to eradicate or contain new weeds;
- identify and prioritise weed management programs where benefits are greatest;
- provide effective and targeted on-ground weed control;
- increase community acceptance of and involvement in effective weed management;
- integrate weed management into education programs; and
- encourage or use cost sharing arrangements.

Funding applications are prepared and submitted regionally. BMCC is part of the Sydney West Blue Mountains Regional Committee, which is further supported by an umbrella organisation of the Sydney Basin Weeds Committee.

Funding for control of WoNS is also provided to Council through the Hawkesbury Nepean Catchment Management Authority (H N CMA).

Private property inspections

Council operates as a local control authority, and this includes the power to delegate staff as inspectors, who in turn inspect private properties, offer weed control advice and issue notices as appropriate.

Council inspects over 1600 properties per year in a coordinated and strategic approach. Areas designated as “target sub catchments” are systematically inspected to ensure entire precincts are controlling weeds in a similar timeframe. Council also undertakes weed control on public land within the same area in conjunction with private property inspections taking place. This greatly improves the efficiency of weed control for everyone as areas are not being re-infested from uncontrolled parcels of land.

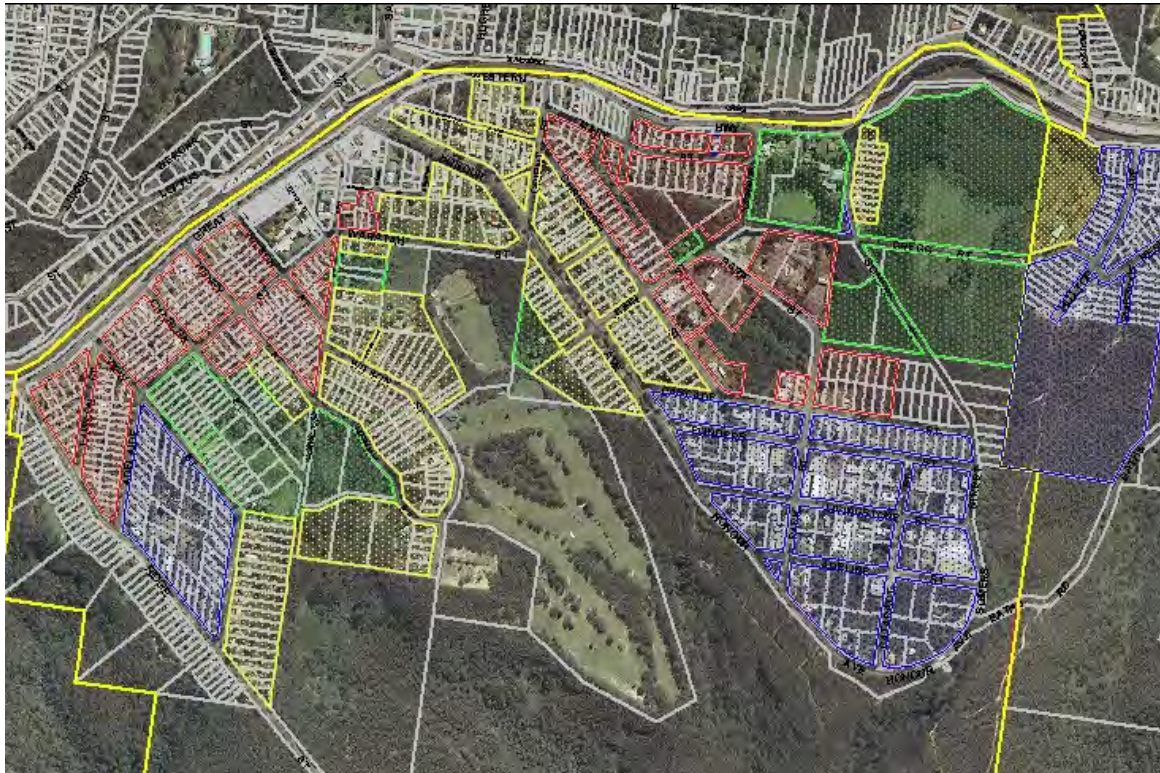


Figure 5: South Lawson Noxious Weed Inspection Areas (Inspection mapping over a 4 year period. Yellow = Year 1, Green = Year 2, Blue = Year 3, Red= Year 4)

It also allows Council officers the opportunity to protect previous and future investment in high conservation assets downstream of inspection zones. All priority sub-catchment areas have had a long history of weed control within the public reserves aimed at restoring conservation landscapes. These projects have been performed using a combination of volunteer Bushcare/Landcare hours, State and Federal grant projects and Council's Environmental Levy and core funding. The priority subcatchment process is further explained in the section on Integrated works in priority subcatchments (Section 2: Issue 9 - National Target 2) and in Appendix 2: Priority Subcatchment Landscape Selection Process.

An example of a sub-catchment inspection process is provided in Figure 5. This is an aerial image of South Lawson, and each colour represents an annual inspection "sector". This entire sub-catchment will take four years to complete.

The Inspection and Enforcement Process

The aims of Blue Mountains Council Noxious Weeds enforcement process is to create a system that initially utilises a co-operative extension style approach focussing on educational material and technical support, but gradually moves to a regulatory approach if non-compliance is apparent .

The processes currently followed by our staff are summarised in Appendix 1: Noxious Weeds Enforcement Process. These processes are reviewed annually to meet operational requirements.

The process has been developed to achieve the following aims:

- The control of weeds on private land;
- Legislated Compliance - adhere to *Noxious Weeds Act 1993*;
- Efficiency – it is possible for each inspector to complete up to 500 inspections per annum;
- Consistency – that every property is treated in a similar manner; and
- Accountability – that a full record is kept of every property and action taken.

These processes are annually reviewed by staff and management and changes are made as a result of changes to legislation or opportunities for improvement.

Implications for strategy

- Council has legal obligations to control noxious weeds on Council managed land & enforce control on private lands;
- Limitations to declaration of new noxious weeds; and
- Sub catchment target landscape approach key to strategic and equitable enforcement.

Pesticide Notification

As a result of the requirements to the Pesticides Regulation 2009, the Blue Mountains City Council as a public land manager is required to have in place a Pesticide Use Notification Plan. The plan guides the Council's staff and contractors in how they notify members of the community of pesticide use in public places throughout the Blue Mountains LGA particularly in regards to works in close proximity to sites listed as "sensitive areas" in the plan.

The Blue Mountains City Council have for some time established what are considered benchmark practices in minimising the community's exposure to pesticides that are applied as part of its pest control programs. These initiatives include:

- The establishment of the Blue Mountains City Council Chemical Sensitive Register;
- The use of the Council Communicator in the Blue Mountains Gazette and the Council's website to alert the community to upcoming components of their weed control programs; and
- Direct landholder notification where appropriate.

These measures allow the Blue Mountains community to make better informed decisions on how they can avoid exposure to pesticides which are utilised as part of pest species control programs in the Blue Mountains Local Government Area.

The plan also identifies a number of operational practices to assist in reducing potential chemical exposures of the broader community when Council applies chemicals in public places. These include wherever possible:

- Undertaking the application of pesticides during oval closure periods on sportsgrounds;
- Where work needs to occur on public places in close proximity to schools that these works are completed outside term time or school hours;
- Early morning applications of herbicides for the control of herbaceous weeds in high use public spaces and town centres; and
- Utilising bush regeneration techniques which involve minimal chemical use within bushland areas.

A reviewed version of the 2006 plan was adopted by Council in February 2010.

The plan does not apply to private land holders who are not required to give notification or for other public land management agencies or authorities within the Blue Mountains LGA as they will be covered through the Pesticide Use Notification Plans developed by the individual land management agencies.

Threatened Species Legislation**Management of Weeds to protect Biodiversity Assets in the Blue Mountains**

Blue Mountains City Council has a statutory obligation to protect threatened species and endangered ecological communities listed under the NSW Government's *Threatened Species Conservation Act 1995* (TSC Act) and the Federal Government's *Environment Protection and Biodiversity Conservation*

Act 1999 (EPBC Act) and to implement their associated Recovery Plans and Strategies, Threat Abatement Plans and Strategies and Priority Action Statement actions in the Blue Mountains Local Government Area.

Weed invasion represents a significant threat to many threatened species in the Blue Mountains, in particular for threatened plant species and endangered ecological communities. Coutts-Smith & Downey (2006) identified 99 threatened plant and animal species in the Hawkesbury Nepean catchment area (44% of the total number of threatened species in the region) as being threatened by weeds. Weeds compete with native plants for resources such as light and nutrients, and can aggressively invade areas, displacing threatened flora and fauna and degrading endangered ecological communities.

The federal Department of the Environment and Heritage lists the 'Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants' as a Key Threatening Process. The NSW Department of the Environment, Climate Change and Water (DECCW) identifies the impacts of a number of weed species such as Lantana (*Lantana camara*), exotic scramblers and vines and exotic perennial grasses as Key Threatening Processes under the TSC Act. In addition the Priority Action Statements for the majority of threatened plant species and endangered ecological communities and some threatened fauna species in the Blue Mountains identify the control of weeds at priority sites to help recover threatened species as priority actions.

Impacts on endangered communities and threatened species must also be considered during the development assessment process.

The strategic management of weeds at priority threatened species sites and within endangered ecological communities is an important biodiversity management responsibility for both Blue Mountains City Council and the Blue Mountains community. Under both the TSC Act and the EPBC Act each sector has obligations for the protection and recovery of threatened species and endangered ecological communities in the Blue Mountains Local Government Area

Implication for Strategy

- Council has a legal responsibility to protect biodiversity

1.3 FEDERAL AND STATE BIODIVERSITY AND WEED CONTROL TARGETS

Relevant National and State biodiversity targets are reflected in the Federal Caring for Our Country Outcomes Paper and NSW Environmental Trust restoration and rehabilitation program objectives.

These can be summarised as:

- Address identified key threats to World Heritage Area values;
- Protect threatened ecosystems and habitats of rare and endangered flora and fauna by reducing critical threats to biodiversity; and
- Enhance condition, connectivity and resilience of habitats and landscapes.

National and State targets specific to control of widespread weeds are reflected in the Federal Caring for Our Country Outcomes Paper and the Hawkesbury Nepean CMA Catchment Action Plans:

- Reduce impacts and coverage of WoNS and Weeds of Regional significance (WoRS);
- Areas treated for invasive weed control are maintained to achieve sustained success; and
- Conditions favouring weed invasion are reduced primarily through improvements in ecosystem conditions as indicated by an increase in native vegetation and groundcover and reductions in erosion and land degradation.

Specific priorities in the Natural Resources Commission (NSW) State-wide resource condition targets include

- By 2015 there is a reduction in the impact of invasive species; and
- By 2015 there is an increase in the recovery of threatened species, populations and ecological communities.

The focus for widespread weed control programs at all government levels is on high quality native vegetation on public and private land in collaborative projects at the landscape scale to achieve sustainable, long term results.

1.4 REGIONAL AND LOCAL WEED MANAGEMENT

Regional and Local Weeds Committees

Four Regional Weeds Committees have formed to promote a cooperative and coordinated regional approach to weed management across the Sydney Basin area. The committee regions are based on Local Government Authority (LGA) boundaries and membership of each committee includes representatives from the LGAs in that area as well as from relevant state and federal agencies.

Blue Mountains City Council is a member of the Sydney West- Blue Mountains region.

In order to be more competitive for noxious weeds funding distributed by Industry and Investment NSW to increase access to a wider range of other funding sources, the four Regional Weeds Committees in the Sydney Basin (including the Sydney West- Blue Mountains Committee) have agreed to amalgamate under an umbrella Sydney Weeds Committee for the purpose of applying for and co-ordinating large scale regional weed management grants. The existing regional committees will continue to meet as sub-regional committees of the larger Regional organisation.

There are seven current Regional Weed Plans which apply to the Sydney West ~ Blue Mountains Region. Six of these plans are relevant to weeds which occur in the BMs LGA: Aquatic Weeds (Alligator Weed, Salvinia, Water Hyacinth, Senegal Tea Plant), Green Cestrum, Privet, Pampas Grass, Grasses (Tussock Paspalum, Chilean Needle Grass, Serrated Tussock and Coolatai Grass) and Willows. Plans for Bridal Creeper and Bitou bush/Boneseed and Gorse/Broom expired in June 2009.

The Regional Weed Plans lay out broad objectives for effective control of the identified species within a specified five year period. They provide information on current distribution and identify impacts and consideration of issues for effective management. Action Plans allocate responsibility to key stakeholders (government departments and agencies, local control authorities, community groups, industry and private landholders) for specific actions to achieve the Plan's objectives.

The Regional Weed Plans are used to co-ordinate target weed control programs across local government boundaries. State government grant funding for target weed control programs has been linked to the objectives of the Regional Weed Plans.

The Blue Mountains Local Weeds Committee is a forum for coordination and integration of agency weed management projects within Blue Mountains Local Government Area. Regular participants include representatives from state government agencies and corporations with some land management capacity within the Blue Mountains area (Sydney Water, Railcorp, DECCW- National Parks, SCA), adjoining local councils (Penrith, Hawkesbury) and county councils who are local control authorities (Upper Macquarie County Council) and peak community groups (Blue Mountains Conservation Society, Bushcare Network). The RTA, Transgrid, Integral Energy and Lithgow Council representatives have also been invited to attend. Although the Local Weeds Committee is a formal committee, it has no official status.

Implications for strategy

- Strategy should place appropriate emphasis on regionally significant weeds & reflect objectives & actions in relevant Regional Plans; and
- Council has an opportunity in its membership of regional and local committees to influence regional priorities and participate in joint grant funding applications.

Hawkesbury Nepean CMA Weed Management Strategy

Catchment Management Authorities (CMAs) facilitate the management of natural resources across their regions using a catchment-based approach. Their role is to foster cooperation, coordination and capacity building of all land managers to achieve the best on-ground outcomes in their target catchment areas. Although they do not have a defined legislative role in controlling invasive species, the CMAs play an important supporting role providing a link between the lead agencies, councils and other land managers.

The CMAs also prepare Catchment Action Plans (CAPs) based on State and Federal government priorities, which incorporate targets concerning the control of invasive species. The CMAs provide funding to public and private land managers for projects which contribute towards the achievement of CAP targets.

The Hawkesbury-Nepean Catchment Management Authority (HNCMA) is the relevant CMA for the Blue Mountains region. The HNCMA's programs and projects are principally funded by the New South Wales and Australian Governments.

The main HNCMA CAP targets relevant to weed management are:

- **Weed control**
"By 2016, there has been a 5% reduction in coverage of target weeds identified in the Hawkesbury- Nepean Weed Strategy through primary weed control measures and effective processes are in place to eradicate new weed outbreaks and emerging weed threats."
- **Maintenance of weed control**
"By 2016, 50% of areas treated for invasive plant control (under projects supported by the HNCMA) since 2006/07 report sustained success."
- **Conditions Favouring Invasive Species**
"By 2016, there is a reduction in the conditions which favour invasive species primarily through improvement in ecosystems as indicated by: An increase in native vegetation; Maintenance of groundcover; Reduction in erosion and land degradation; Use of Current Recommended Practices. Diversity of in-stream habitat; A reduction in sediment loads; A reduction in nutrient loads; A reduction in streambank degradation (erosion)"

These targets underpin the HNCMA Weed Strategy which provides the framework for CMA sponsored cooperative weed management projects across the catchment. This includes funding programs for community awareness/education and on-ground works. Under this strategy the HNCMA have identified regional target weed species (Weeds of Regional Significance- WORS). Priority weed sites in each region have also been identified as targets for control of widespread weeds. The outcomes of this process will be used to guide CMA investment and inform threatened species recovery planning. Thirty nine high priority sites on both private and public land have been identified in this process within the Blue Mountains LGA.

Implications for strategy

- A strong biodiversity focus in the CMA Weed strategy will influence future weeds funding priorities;
- Access to CMA funding is based on WORS & priority site lists;
- CMA programs offer opportunities for co-operative programs across LGAs and tenures; and
- Participation in CMA committees provides opportunities to influence regional targets.

BMCC Environmental Management Service and Environmental Levy

Bushland Management, Bush Regeneration, Bushcare and Urban Weeds are core environmental program areas in which weed control and the management of degrading impacts which affect weed spread are the major component. Together they comprise 33% of the Environmental Management core budget. Flora and Fauna and Creeks and Catchments are other program areas which also include a component of weed management.

Environmental Levy programs which primarily focus on weed management are:

- Noxious and Environmental Weed Control (Urban weed control, Resident Weed Control Support, Bush Regeneration, Bushcare, Rehabilitation of Endangered Ecological Communities); and
- Bushland Interface (Habitat Conservation Network, Landcare – Stage 2, Industry Training, Rural Practice Improvements)

Together these programs account for 13.5% of the total Environmental Levy budget in 2009-2010.

The Creek line restoration program also addresses degrading factors contributing to weed invasion and includes a minor component of weed control.

The Council Environmental Management service has committed to providing the activities and actions related to weed control in 2010-2013 as shown in Table 4 and Table 5.

Table: 4 Council Environmental Management services 2010-2013

Service Activities 2010-2013	Responsible Officer	2010-2011 Actions
Regenerate Council owned bushland	Manager Environmental Management	Undertake Bush Regeneration program in reserves across LGA
Raise awareness through environmental education	Manager Environmental Management	Deliver a range of environmental education programs including the Schools Environment Network and School Environment Awards.
Restore degraded lands	Manager Environmental Management	Undertake degraded lands restoration
Coordinate and support volunteer programs - Bushcare/ Landcare/ Streamwatch	Manager Environmental Management	Facilitate a community Bushcare/ Landcare/ Streamwatch Program across LGA
Control weeds - urban and bushland areas	Manager Environmental Management	Implement weed control works in urban and natural areas across LGA including private property inspections

Table 5: Environment Levy works program 2010- 2011

The Environment Levy Program	Program description	Work planned for 2010-2011
1. Aquatic Systems Monitoring / Catchment Health		
1.2 Creekline restoration	The Creekline Restoration Program is aimed at improving stream health and protecting native vegetation through a program of works focused on stream bank stabilisation, weed management in riparian areas and rehabilitation of degraded creek banks. The program will concentrate on priority catchments and compliment and value add to existing projects.	<ul style="list-style-type: none"> ▪ Creekline restoration sites in 8 target subcatchments will be worked. Further sites identified on needs basis from water quality and macro-invertebrate monitoring and bush regeneration sites. ▪ Continue to address stormwater damage as part of the Save our Swamps Blue Mountains Swamp Restoration Project.
3. Noxious and Environmental Weed Control		
3.1 Urban Weed Control	Increase weed control on private land surrounding public land under going treatment to prevent reinfestation. Expand private property inspection program to double annual inspections currently undertaken (i.e. before Env Levy).	<ul style="list-style-type: none"> ▪ Comprehensive inspection and control program on private land in 4 priority catchments. and ▪ Targeted locations in lower Blue Mountains, and Mounts as part of the Shale based and Moist Basalt Cap Conservation Landscapes restoration program.
3.2 Resident weed control support	Increase weed control on private land surrounding public land under going treatment to prevent reinfestation. Advise and assist landowners individually to manage weed issues on their land	<ul style="list-style-type: none"> ▪ Continue to provide on-site advice to residents on sustainable weed control. ▪ Conduct Blue Mountains Living Courses in priority sub-catchments.
3.3 Bush Regeneration Works	Expand the bush regeneration program to continue comprehensive maintenance on ten high priority bush regeneration sites.	<ul style="list-style-type: none"> ▪ Continue comprehensive maintenance on the ten former URCP Bush regeneration sites targeting key conservation areas as part of the Shale based and Blue Mountains Plateau Conservation Landscape Restoration Programs. ▪ Secure external grant funding to increase the scale of bush regeneration works.
3.4 Bushcare	Expand the Bushcare program by developing event-based opportunities and skill development opportunities for Bushcare volunteers to allow for higher-level engagement in Bushcare sites.	<ul style="list-style-type: none"> ▪ Deliver "Remote Area" Bushcare events, educational biodiversity events – Flora and Fauna Walks and support new Bushcare and Landcare groups.
5. Bushland Interface		
5.1 Habitat Conservation Network	Establish on-going network to provide high-level technical and material support to individual landowners who are shown to be achieving significant conservation outcomes. Develop supporting educational material and participate in educational activities to raise community awareness and skills in bushland conservation and rehabilitation.	<ul style="list-style-type: none"> ▪ Continue Bush Backyard Network. ▪ Continue to extend network in Shale Based Endangered Ecological Communities (EEC's)
5.2 Landcare - Stage 2	Expand current program to respond to high-level community interest	<ul style="list-style-type: none"> ▪ Continue to support Landcare Groups with a focus on

The Environment Levy Program	Program description	Work planned for 2010-2011
	and target significant catchments.	priority catchments to address weed and other land degradation issues.
5.3 Industry training	Work with other local professionals (nurseries, landscapers, earthmovers etc) through consultation and targeted workshops to encourage best practice in weed management.	<ul style="list-style-type: none"> Commence implementation of a "Bush Friendly Nursery" Scheme aimed at business promotion and community education.
5.4 Rural practice improvements	This item aims to increase co-operation and develop a joint approach to land management issues between landholders and other land management agencies and improved skills and on-ground practices of private land owners.	<ul style="list-style-type: none"> Continue to liaise with rural landholders and assist with training and grant funding for sustainable land and weed management and pest control on rural land, particularly in Megalong Valley and Sun Valley.
6. Bush land Reserve Management		
6.3 Degraded Land Restoration	Continue the Urban Runoff Control Program (URCP) Degraded Lands program by prioritising and managing the implementation of degraded land restoration works. Approximately 10 sites per year.	<ul style="list-style-type: none"> Continuation and maintenance of works in priority sub-catchments: Eastern Escarpment (Knapsack Park, Glenbrook, East Blaxland), Yellow Rock/Winnalee and Hazelbrook/ North Lawson and other project sites. Undertake maintenance of past Levy funded works to protect investment and respond to urgent degraded land issues as identified during the year.
6.5 Rehabilitation of Endangered Ecological Communities and other significant vegetation	TSC endangered ecological communities are a high priority; all three shale-based communities are under significant pressure with most remnants being degraded and/or invaded by weeds	<p>Program of works will include:</p> <ul style="list-style-type: none"> Bush regeneration works focusing on key conservation landscapes such as shale-based EEC's in the lower Mountains from Springwood through to Lapstone. Restoration program in Blue Mountains Swamps throughout the Upper and Mid Mountains and on Moist Basalt Cap Forests in Mount Wilson. <p>Continue to seek matching funds from external sources to extend program of works.</p>

Implications for strategy

- Core Environmental Management and Environmental Levy programs should maintain emphasis on weed management to reflect priorities in Sustainable Blue Mountains 2025.

Weeds, Planning and the Development Assessment and Approval Process

During the development process activities such as soil disturbance occur, which can encourage the spread of existing weed species from the site. Council can control the clearing of vegetation and the disturbance that occurs to sites as part of the development process.

Council can require that weeds on a site are treated as a condition of approval of the development and this approach is now taken on developments where weeds are a significant issue. This is a key means of protecting adjacent properties and downstream ecosystems from further incursions.

The Blue Mountains Environmental Planning Instruments (Local Environment Plans, Better Living Development Control Plan) provide for assessment and management of vegetation on private property during the development assessment process, and this may include weed management and rehabilitation of disturbed or degraded portions of the site. There are opportunities for new residents and home owners to be introduced to existing Council networks and resources during this process, and potential for links with neighbourhood or landscape scale programs to be identified and promoted at this stage.

In the implementation of asset protection zones on land in bushfire prone locations, Council requires the removal and ongoing management of weed or potentially invasive species in the first instance. This and other vegetation management requirements may be conditioned by Council in the approval of any development application.

Significant weed control programmes have been undertaken on a number of sites under these approval processes at both the subdivision and individual development level.

New weeds can also be introduced to the area in plantings associated with developments.

Identified weed species must not be included in landscape plans and planting with appropriate native species is encouraged particularly at the bushland interface. The Mountain Landscapes site on the BMCC website provides advice on sustainable landscape management to minimise site disturbance which contributes to weed spread and lists recommended local native species for various geographic areas and micro climates.

The weed list in the Better Living Development Control Plan (see Appendix 2) is a static list compiled in consultation with local weed experts. Apart from the noxious weeds list this is the only official Council list available to the community to indicate which weed species are of concern and should not be planted in the LGA.

Council is currently reviewing the planning instruments to comply with the NSW Department of Planning's new Template for Planning Instruments. As part of this process Council is investigating methods to make the weed list a 'live' list which can be regularly updated as new weeds appear and to reflect new knowledge and experience. Inclusion of species on the list would be based on a transparent weed risk assessment process.

Implications for strategy

Compilation of a Council wide 'live' list based on the NSW Weed Risk Management assessment process which is an objective and widely accepted process, would provide Council with a single list with various categories appropriate to:

- Identification of weed species which are a high priority for management in the development assessment process;
- Identification of weed species which should not be included in landscaping plans by developers & other land managers; and
- Urban, rural and environmental weed management program priorities .



Section 2: BMCC WEEDS PLANNING FRAMEWORK

This section identifies the major issues which influence weed management in the Blue Mountains.

Issue 1: CONSERVATION MANAGEMENT

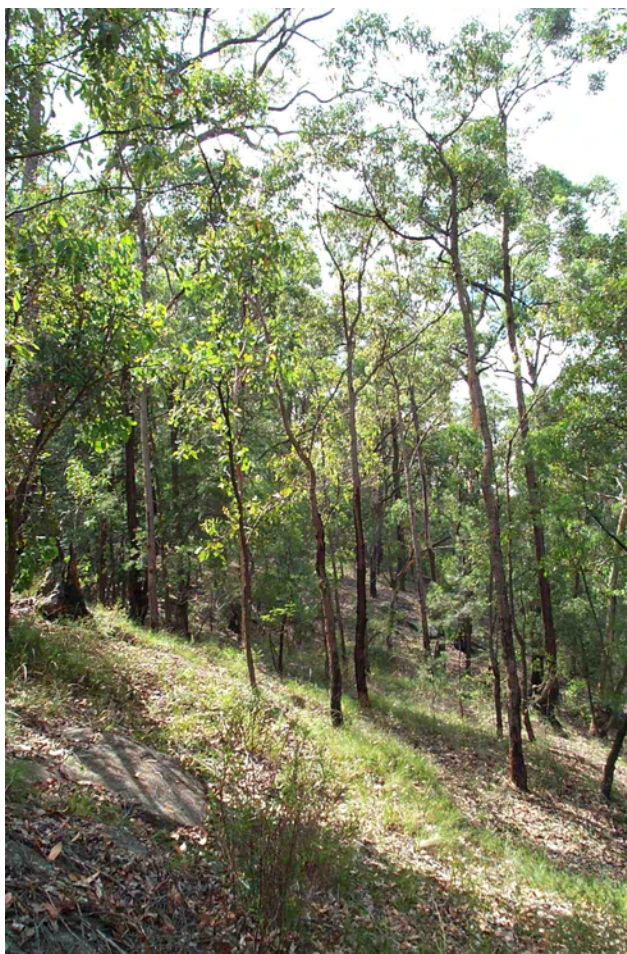


Figure 6: Lower Mountains Shale/Sandstone Forest

The Blue Mountains Local Government area (LGA) is a biologically rich environment containing many rare and endemic species including eight Endangered Ecological Communities and 86 threatened flora and fauna species. These key conservation assets are linked to the conservation values encompassed by the adjacent World Heritage Area. Council has a responsibility to manage impacts on these assets, including weed invasion, in line with State and Federal biodiversity conservation and weed management targets. This is recognised in the BMCC Map for Action 2000-2025 relating to managing impacts at the urban bushland interface.

There is significant grant funding available to assist Council and other land managers to contribute to these targets. This funding provides considerable additional capacity to Council's annual weed control and bush regeneration programs to protect target ecosystems and manage strategic weed programs across the City.

It is now widely recognised that a landscape scale approach which focuses on protection of key biodiversity assets on all land tenures across similar landscapes achieves the best conservation outcomes.

There are four conservation landscapes which represent distinct groupings of vegetation types based on similar geological and climatic conditions encompassed within the Blue Mountains LGA.

- Blue Mountains Plateau landscape - Lawson to Mt Victoria / Bell;
- Lower Blue Mountains Shale - Sandstone landscape - Falconbridge to Lapstone;
- Moist Basalt Cap landscape - Mt Wilson, Mt Irvine and Mt Tomah; and
- Megalong Valley Granite - Sandstone landscape - Megalong Valley.

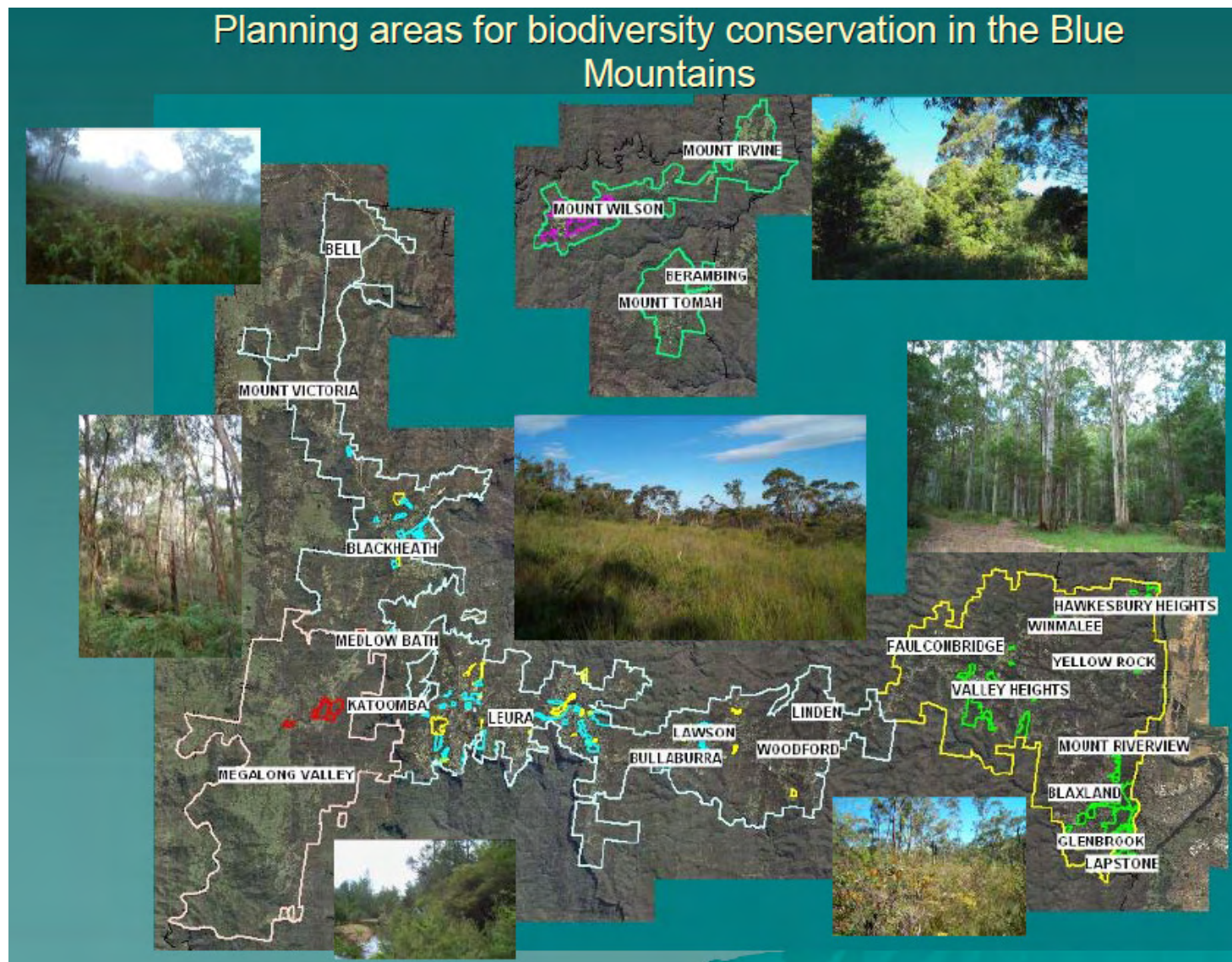


Figure 7: Conservation Landscapes



Figure 8: Mt Wilson Moist Basalt Cap Forest

Each landscape supports distinct flora and fauna conservation values which require protection. The highest priority conservation values are listed in Appendix 2: Conservation Assets in each Landscape Unit. These conservation values are spread across various land tenures including private property, BMCC reserves, reserves managed by adjoining Councils, Crown land and the National Park. Weed invasion linked to urban runoff and clearing of bushland is the major

degrading impact on these assets. A weed strategy which combines comprehensive bush regeneration in high value bushland and target weed and stormwater control across the wider landscape restores conservation values and minimises on going degrading impacts.

To avoid the different categories of land tenures being an impediment to landscape scale weed control strategies, an integrated program is needed which comprises:

- Community engagement;
- Extension and incentives for target landowners;
- Cooperative works across LGA boundaries, Crown and National Park reserves; and
- Targeting of regulatory programs to control impacts in key areas.

This partnership model which targets key conservation assets by integrating funding for weed management on Council reserves with other land tenures is now accepted best practice. Regional landscape scale partnerships focused on specific shared conservation assets across various land tenures and across LGA boundaries are becoming the most favoured model by funding bodies (e.g. Save Our Swamps project).

Implications for strategy

- A primary focus on an integrated, cross-tenure approach to weed control at a landscape scale will provide the most effective weed control and conservation protection outcomes.

Issue 2: MULTIPLE LANDOWNERS

Each sub-catchment in the City is made up of a mix of land tenures in which urban impacts spread from the linear development along the ridgelines downstream into Council reserves and in turn the National Park and Blue Mountains World Heritage areas. Urban density is greatest in the upper catchment around the transport corridor along the main ridgelines. However, extensive areas of bushland interface with private landholdings occurs throughout every township of the Blue Mountains. This interface is another key entry point for weeds into the bushland across the Blue Mountains.

Weed issues are primarily generated in the urban areas and spread downslope, along creek systems and through other vectors such as birds (Himalayan Honeysuckle, Boneseed, Lantana and Blackberry) and wind (Pussy Willow) into less intensely developed lands (private properties, Council and Crown reserves) fringing the urban areas and into the National Park. New weed populations then establish wherever suitable conditions exist. In the case of some of the more highly invasive weed species their capacity to establish in near intact systems poses a significant threat to biodiversity and World Heritage values downstream.

In order to provide cost effective weed management, programs need to be integrated across all tenures at a landscape scale to minimise reinfestation and further extension of a range of these highly invasive weed species from untreated areas.

There are several State and Federal Government departments and authorities who manage land within the LGA. Some of these are primarily land managers (Department of Environment, Climate Change and Water (DECCW), Crown lands, Sydney Catchment Authority (SCA)) who share common objectives and responsibilities with Council.

For others land management is only incidental to their primary purpose of providing services and infrastructure (Roads and Traffic Authority (RTA), Railcorp, Integral Energy, Transgrid, Sydney Water, Department of Housing, Health and Education and Department of Defence).

Council has no direct effective regulatory power to enforce weed control on lands managed by State and Federal Government departments and authorities. Where action is required it can be taken through the relevant Minister.

Council relies initially on relationship building (as it does with many private landowners) with the land managers in these agencies as the basis for collaborative weed control programs. This was a primary motivator for the reformation of the Local Weeds Committee in 2008 after a 2 year gap.

The local weeds committee and individual noxious weeds officers working in target sub-catchments are the main vehicles for developing these relationships.

Transport corridor - Blue Mountains City Council, Private lands, RTA and Railcorp

The transport corridor comprises the highway and adjoining residential minor arterial roads and the rail corridor. Land along the transport corridor is managed by a mix of land managers both public and private with the largest percentage being managed by Blue Mountains City Council, the RTA and Rail Corp.

Outside the white line along the highway carriageway weeds are managed by Council. In areas under construction the RTA retains responsibility for weed management within the project footprint until construction activities are completed. Railcorp retains all responsibility for vegetation management within its fenced corridor.

Long linear reserves and land parcels are prone to weed invasion due to their configuration and high edge to core ratio. In addition a relatively large percentage of this land is disturbed by construction

and maintenance works and the flow of traffic which encourages weed establishment. It is also a high risk pathway for introduction of new weeds transported by vehicles both rail and motor vehicles, which is at the top of the catchment.

Council access incorporating safe traffic controls is a major constraint to effective weed management along the highway edges. Undeveloped, narrow sections of highway present a high risk work environment which cannot be easily closed off to allow safe access.

There have been a number of co-operative weed control projects over the past three years with the transport authorities and Council to control identified weeds on lands under their control in target subcatchments.

Railcorp has committed a significant proportion of their land management budget to weed control on their land within the Blue Mountains LGA. The RTA also undertakes targeted works on properties it owns along the transport corridors.

National Parks

The Blue Mountains National Park is the ultimate recipient of impacts from the urban area including weed spread. Weeds can also spread from untreated infestations in National Park back into council managed land. Many Council reserves have a shared boundary with the National Park. Council and DECCW has an ongoing history of cooperative weed control projects involving both grant funded contract works and joint volunteer programs (e.g. North Katoomba Broom Blitz (see Appendix 4) and the Great Grose Weed Walk).

Adjoining Local Government Areas

Reserves in the Penrith LGA are the end recipients of substantial impacts in a number of eastern escarpment streams as well as providing source points for reinfestation of bird distributed weeds i.e. Lantana, Bridal Creeper and African Olive. Weeds on adjoining properties in the Lithgow LGA have considerable impacts on agricultural lands in the Megalong Valley as well as having shared issues with bird distributed weeds in the Newnes / Blue Mountains plateaus interface.

Crown Lands

Council manages 4435 hectares of Crown lands for which we are the trustee and therefore responsible for management. A very modest amount of funds are available through trust management programs to assist trustees. There are also some Crown lands where the Crown remains the manager and they are responsible for its management.

Other government land owners

Sydney Water, Integral Energy, Transgrid, Department of Housing, Education, Health and Defence Departments all manage substantial parcels of lands many with key conservation assets present as well as significant weed problems. A number of these landowners, such as the Department of Defence and Sydney Water, have annual weed control programs on target properties within the local government area.

Other land and natural resource managers

Partnership programs with regional and state wide departments and agencies responsible for natural resource management, such as Catchment Management Authorities (Hawkesbury – Nepean and Sydney), DECCW and Sydney Catchment Authority have potential to provide for significant weed control outcomes where shared goals and targets exist between Council and the participating organisations (see Appendix 4: HN CMA Model project- Megalong Valley) .

The benefits of these partnership programs are twofold.

Direct action on lands under their management provides for an important and complimentary component in the broader landscape scale control of weeds across the Blue Mountains.

In addition, many of these organisations provide funds directly to Council or private landholders to undertake on ground works addressing key weed species as part of strategic weed control programs targeting broader conservation outcomes.

These funds play a critical role in maintaining the scale of the Blue Mountains Council's program, without which there would be a significant reduction in the both the scale and scope of works undertaken across the Blue Mountains LGA.

Conservation assets across public/ private tenures

There is a significant proportion of the conservation assets within the LGA on private land. The 7652 ha of private land zoned Environment Protection (EP) includes scheduled vegetation and creeklines which are subject to weed invasion but can also be adversely affected by inappropriate weed control actions. Council works closely with owners of EP lands to encourage staged weed control strategies which will reduce impacts on the catchment and also protect conservation assets.

These landowners are encouraged to participate in cross tenure partnerships in target sub-catchment landscapes and included in grant funded programs where appropriate.

Implications for strategy

- Council weed programs should include a significant component dedicated to co-operative projects with community, other government and private landowners to achieve effective, sustainable City-wide weed management outcomes (see Appendix Four: Case Study – North Katoomba Broom Blitz-Coordinated subcatchment works in Katoomba and Govetts Creeks); and
- External grants delivered through partner organisations play a critical role in maintaining the scale and scope of weed control programs in the Blue Mountains.

Issue 3: COMMUNITY EXPECTATIONS

The community of the Blue Mountains has a strong interest in the environment which drives Council to place major emphasis on bushland conservation and weed control. Community survey results indicate a high level of concern for protection of the environment and bushland health.

Council is constrained by the limited resources available for bushland and weed management in meeting all weed related Customer Service Requests (CSRs). Many of these indicate a community awareness of weeds but a tendency is to recognise weed issues only when they directly impact on their property or areas that they access regularly. These easily recognised weed issues are often not a high priority in a strategic sense as they often involve:

- Weed species which will only occur in highly disturbed areas and do not tend to spread far into bushland or have a high impact on public or residential amenity except in an aesthetic sense (i.e. Naturalisers);
- Weed populations at the headwaters of creeks and stormwater drainage lines and other disturbed environments on the urban edges of bushland which are absorbing the impacts of urban runoff which would otherwise be penetrating much further into healthy bushland below; and
- Low priority weed species in small remnant patches of bushland which do not represent high value ecological assets, have a low environmental cost/ benefit to treat and weeds are unlikely to spread out of the local area.

Consultation with the Bushcare and conservation community indicates that they expect Council's weed control efforts to be:

- Based on a strategic assessment of conservation assets and weed risk assessment;
- Based on clear priorities with highest priority on key conservation assets in priority sub-catchment landscapes, and also provide resource allocation for target weeding across the LGA and responses to community requests;
- Including effective weed education which is more focused to address key issues and target audiences;
- Responsive to new weeds and unexpected disturbance factors such as fire; and
- Including strategies to reduce obstacles to effective weed management for private landowners.

The major concerns for rural landowners are based on the impacts of specific weeds such as Blackberry, Serrated Tussock, Paterson's Curse and St Johns Wort on agricultural production and potential weed spread from neighbouring lands which impacts on their weed control efforts. Their expectations of Council include:

- Equitable and consistent application of the noxious weeds inspection and compliance process;
- Consistent and effective weed control on public land; and
- Access to expert advice and incentive funding to assist with large scale or intractable weed problems on their land (see Appendix 4: HNCMA Megalong Valley Project).

Results of BMCC community surveys

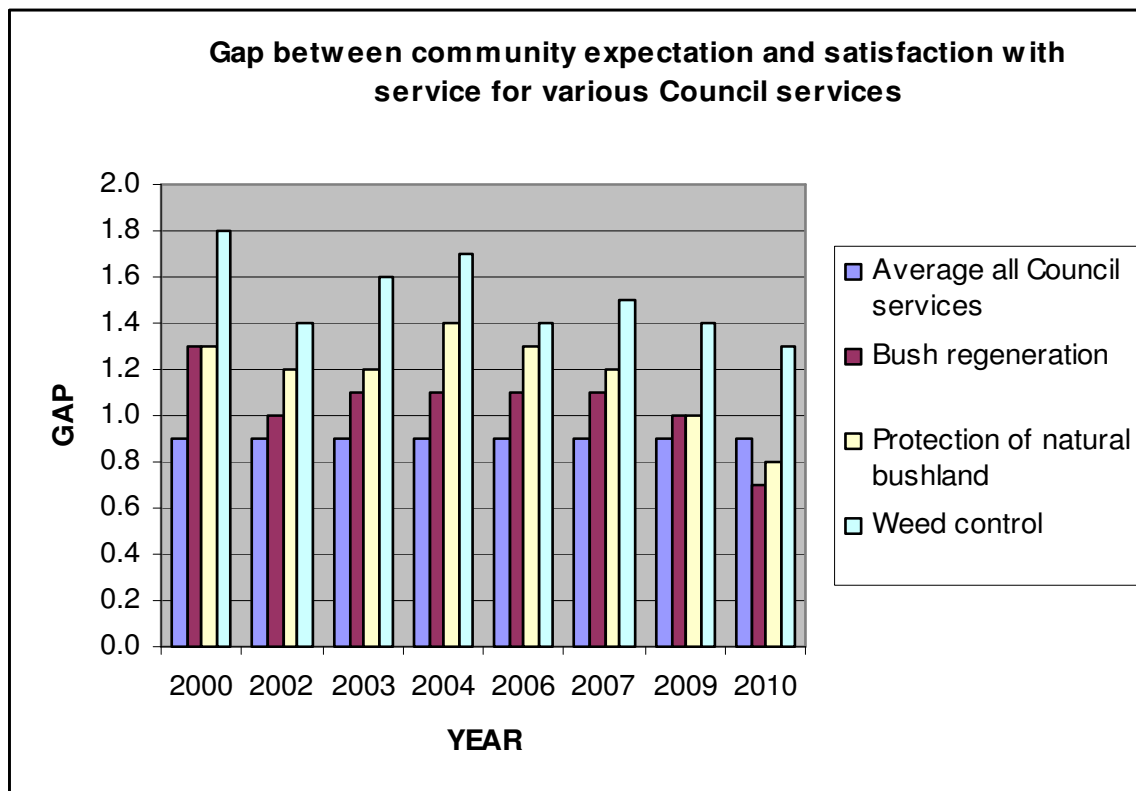
MAJOR ISSUES OF CONCERN

Results of the annual community survey conducted for Council by IRIS Research indicate that 'the natural environment/bushland' is what the majority of residents most value about living in the Blue Mountains. The 'protection of the environment' has consistently been identified in the top 10 Citywide priorities in the last four community surveys.

Service areas associated with these values have also consistently scored as highly important to residents over the past eight years. Results for 2000- 2010 indicate that in the service areas of 'protection of natural bushland' and 'bush regeneration' the community satisfaction rates have consistently improved over the past eight surveys and that there is now general satisfaction with Council's performance. Although satisfaction with 'weed control' service has improved over the same

period, this service area is still thought to be not meeting expectations and needing improvement (Figure 9).

Figure 9: Trends in community satisfaction with Environmental Management service areas related to weed management



Customer Service Request management

Council receives an average of between 250 and 300 Customer Service Requests (CSRs) directly related to weed control on private and public land annually. This is approximately 20% of all CSRs received, which indicates a high level of community concern. A majority of these requests are related to the weeds that are most obvious to people, on road edges and neighbouring properties. Relatively few requests concern the impacts of weeds on bushland health.

Implications for strategy

- Work should not be programmed for bushland for principally aesthetic reasons or where that work is not consistent with the weed control priorities and eradication/containment objectives established by this strategy;
- Weed management in agricultural landscapes should focus on impacts on production as well as biodiversity and amenity outcomes;
- Manage CSRs as a proportion of weed control resources to meet community residential amenity and access needs; and
- Implement an education and information campaign to raise awareness of Council's multiple weed control responsibilities and programs, commencing with the exhibition and circulation of this proposed strategy.

Issue 4: SUSTAINABLE WEED MANAGEMENT

Given the limited resources available for weed control in the LGA it is important for Council to maintain the budget focus on strategic rather than reactive weed control works to ensure integrated works which will result in long term weed management gains.

Primary weed control, the first stage of clearing weeds from a site, entails high costs for apparently high gains as dense weeds are removed and the site appears to be clean. But if this work is not followed up and maintained in the long term then the weeds quickly re-establish and gains are lost. Resources can be easily wasted as a consequence of not being strategic in initial investment to target sites where the most benefits can be achieved and not allocating on going resources for low level maintenance in the long term (see Appendix 3: Large scale clearing of weeds).

The level of control gained from the resource input is highly variable. Considerable resources can be channelled into control of a particular weed in one area with no noticeable change in the weed's distribution or environmental impact in the long term, while a high level of long term control can be achieved for the same species in an area where its distribution is more contained with a substantially lower input of resources.

Gorse, Crofton Weed, Lantana and even Scotch Broom are examples of ecosystem transformer weeds for which large levels of control can be achieved with low levels of expenditures in situations where their distribution is limited and geographically contained. In other locations the costs of control for the same weeds could be significant where there are large infestations spread across the landscape.

Species such as Privet and Blackberry require substantial resources to achieve relatively limited results (see Appendix 3: Large scale clearing of weeds). There are a number of reasons for this. The current distribution of these weeds is extensive. Once the need for source control in the surrounding areas and the fundamental requirement for secondary and ongoing maintenance on the area initially treated is taken into account, it is practically impossible to eradicate them from the Blue Mountains.

These species also often occur in areas that have been heavily modified (not always immediately apparent) by human impacts. As long as these causes of disturbance remain, the weed species will continue to appear and out-compete native species. Programs to address the causal factors such as stormwater impacts are under way but these programs are expensive and results can only be expected for the majority of the areas in the long term.

Whilst Council is not able to eradicate these weeds, an objective of containment, (i.e. stopping the further spread of the weed) and removal from select areas of high conservation value or public amenity is reasonable.

Due to the widespread and highly visible nature of Privet and Blackberry Council receives a very high level of customer demand for their treatment. If Council is to ensure that weed control programs maximise the effectiveness of control whilst meeting community expectations, the rationale for targeting of priority weeds will need to be effectively communicated.

Council's current weed control programs are funded by a combination of core funds, Environmental Levy funds and grant funding based on co-operative arrangements with other land managers and regional participation. Council maintains access to grant funding by identifying synergies in our programs with regional government targets to access additional funds for conservation weed control works. It is also important to maintain regional participation in committees and forums to ensure involvement in setting regional targets that can effectively help deliver strong local outcomes. The Environmental Levy funds are often used as leverage for matching funds provided by State and Federal government programs, thus allowing Council to greatly expand its resource base of environmental funding.

Implications for strategy

- Strategic programs provide best returns for council investment; and
- Maintain regional participation to maximise access to other funds.

Issue 5: THE WEED MANAGEMENT BUDGET

Budgets are the main mechanism that Council uses to translate strategic planning into operational outcomes. Council sources its income from a number of areas which include rates (44%), fees (11%), grants (10%), interest on investments (2%) plus a variety of other streams. These revenues are then allocated between Council services via the Council's Resourcing Strategy and the Council's Delivery Program (incorporating the Operational Plan). Budgets are set and voted on by Council each financial year.

The overall expenditure budget for Blue Mountains City Council was \$107 Mil in 2009/10 of which \$3.9mil is dedicated specifically to Environmental Management. This portion includes works which cover activities such as waste and recycling, emergency services management, water resource and bushland management. The budget trends relating specifically to weed management and the actions within the Action Plan of this strategy are shown in Figure 10.

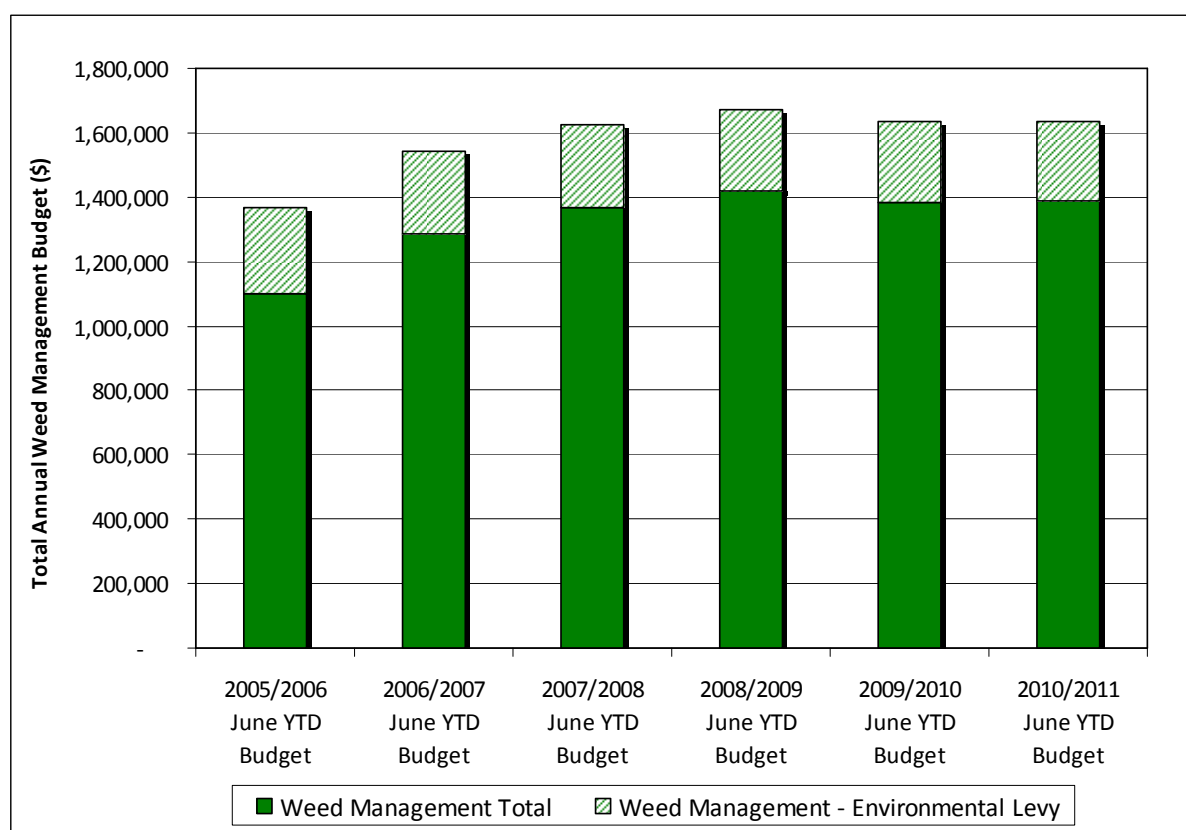


Figure 10: BMCC weed management budgets

These expenditure budgets support a number of weed control focused programs within council such as:

- Bush Regeneration;
- Noxious Weed Inspection and Control;
- Bushcare and Landcare;
- Bushland Management Operations; and
- Private land extension.

Grant Funding

Council programs achieve significantly greater outcomes than core funding can provide by accessing external grant funding. Various State and Federal government grant programs provide funds to deliver specific environmental outcomes aligned with their natural resource management targets. It is

generally a requirement that these funds are matched with dollars from the applicant. The environment levy funds play a key role in achieving this outcome.

In the past five years (2006-2010) a total of \$1,077,941.00 has been received from external grant programs for noxious weed support and weed control in high conservation value vegetation in Council reserves. In 2010-2011 \$318,890 has been expended through externally funded projects undertaking weed control in endangered ecological communities and threatened species habitat across the Blue Mountains LGA. \$36,500 has been received to assist in the co-ordination of Council's noxious weeds program. Council also receives grant funding for target noxious weed control of between \$70,000 and \$5,000 per year depending on the grant funding body annual targets.

Council applies for these grants or enters into grant partnerships with other organisations where grant program targets align with council's core program outcomes. In this way Council manages to extend its delivery of environmental programs within the Blue Mountains and increase the value of return for a rate collected dollar. As these funding sources are dependent on broader political climates, they cannot be relied upon to deliver core Council functions, but are an effective means of building capacity when an opportunity presents itself.

Future Budgets

Council faces significant financial challenges over the coming years. These are the result of increasing expenditure in the delivery of services outstripping increases in revenue. The current four year Operational Plan to 2013 indicates a similar trend of budgets to the previous five years for weed management. However the Environmental Levy is due to expire in 2015 and will require a re-application to Council including a community consultation process. External grant funding opportunities depend on political influences outside of the control of the Council, but have been indicating a downward trend in the past three years.

Implications for strategy

- Continued access to applicable grant funds is needed to maintain capacity to deliver weed management outcomes; and
- Response to potential downward trend in available funds may require reductions in establishment of new weed control work sites and focus on consolidation and maintenance of existing work areas.

Issue 6: NOXIOUS WEEDS

Council has statutory obligations as a Local Control Authority to survey, inspect and control for noxious weeds. Council follows a strategy which aligns the focus on noxious weeds with pre-existing priorities across the city. In this way the program responds in a supportive role to protect and conserve existing investment in managing high conservation areas and assets rather than being a sole focus in itself.

As a Local Control Authority Council only has jurisdiction to enforce noxious weed control on private land, and not over land managed by State Government Authorities' such as the RTA, Sydney Water, Railcorp and DECC. Council works with these authorities in an ongoing facilitative capacity to maximise weed control outcomes potential on land under their ownership, which has resulted in some positive outcomes in recent years.

PRIVATE PROPERTY INSPECTIONS

Advantages:

- *Relatively low cost to Council;*
- *Reduction of weed input from private onto public land;*
- *Improved amenity and appearance of townships;*
- *Ability to clean up absentee-landholder properties;*
- *Ability to specify approved control method to protect Endangered Ecological Communities; and*
- *Community education and awareness benefits, as landholders receive substantial information kit (currently equivalent of 15 x A4 pages of information) on weed identification, control and herbicides.*

Limitations:

- *High administrative requirements;*
- *Applicable only to weeds that are declared noxious;*
- *For purposes of equity, Council land must be relatively weed free or have control programs in place before Council can issue notices to residents to remove weeds;*
- *Cost impost on residents; and*
- *Possible hazard and minimal control of techniques or chemicals actually used by residents or contractors to control weeds.*

Table 6: Noxious weeds inspection and enforcement trends

Council Noxious Weed Activities	2000 /01	2001 /02	2002 /03	2003 /04	2004 /05	2005 /06	2006 /07	2007 /08	2008 /09
No. of inspections	993	1079	1858	2352	2280	2867	1500	2407	2204
No. of Section 45 and 18A	361	363	718	812	894	1050	1100	1692	1590
No. Section 18 Weed Control Notices	123	141	151	212	291	470	507	417	767
Show Cause	N/A	N/A	32	59	60	97	92	65	65
No. of Section 20 entries	10	42	33	15	16	20	16	15	17
Compliant	245	271	409	467	339	575	567	870	851

Regional and Local Weed Management

Regional and Local Weeds Project

Blue Mountains City Council is a signatory to and identified as a stakeholder in three current regional weed plans.

- Sydney Wide Tree and Shrub Regional Plan 2010-2015;
- Sydney-wide Grasses Management Plan ('The Big Four') 2006- 2011 (relates to Tussock Paspalum, Chilean Needle Grass, Serrated Tussock and Coolatai Grass); and
- Sydney Vine and Scrambling Weed Management Plan 2010-2015.

The Plans identify specific actions which stakeholders are expected to participate in within their jurisdiction such as:

- Map and quantify current populations;
- Identify and inspect high risk sites;
- Eradicate new incursions, control small infestations and contain larger infestations to prevent spread and establishment of new populations on public lands;
- Strategically inspect and enforce control on private lands;
- Implement awareness and identification skills education for Council staff, contractors and relevant community members; and
- Increase community awareness of weed and impacts.

The aim of these Plans is to coordinate a regional approach for planning of funding applications and grants and on-ground work in order to contain, reduce and where possible eradicate existing infestations, and prevent these from expanding and spreading to form larger and new populations. Strategic regional weed planning is important to secure government weeds funding and is the focus of regionally administered co-operative weed control projects.

Implications for strategy

- Resources must be allocated for target weeds covered by Regional Plans; and
- Council participation in the Regional Weeds Committee and other similar agencies is important to ensure our local concerns are considered in setting regional targets.

Issue 7: CLIMATE CHANGE

Limited data is available on the specific impacts climate change will have on invasive species. All plants are restricted within climate envelopes, so any shift in climate will affect the distribution of that plant. This will clearly have an effect on our agricultural lands, gardens, native ecosystems and of course weeds. It is therefore crucial to continue seeking a better understanding of the relationship between climate change and the impact on long term vegetation management.

As a rough guide, species living in warmer climates are expected to move southward or upwards in altitude, and cooler climate species are likely to contract. Within the Blue Mountains this may see species such as Lantana moving up to higher parts of the mountains where it currently does not exist. Conversely we may see a reduction in the range of typical upper mountains weeds such as Holly.

The Blue Mountains City Council Climate Change Risk Assessment (2009) considers that the area will experience an increase in extreme weather events such as bushfires, droughts and flash flooding. The disturbance to ecosystems that these events will create is likely to encourage weed species, which are often much better colonisers than their native counterparts.

Climate change may also increase the threat of species not yet present in the Blue Mountains. The area is located between the Sydney basin and the western slopes farming land. This places our LGA in a strategic location to halt the spread of weeds potentially moving in either direction.

Implications for Strategy

To be consistent with the NSW Invasive Species Plan, key objectives of the Blue Mountains Weed Strategy should include:

- Keep informed of advances in the understanding of the interaction between climate change, weed species and biodiversity;
- Identify changes in the distribution, abundance and impacts of weed species to ensure impacts on biodiversity are minimised; and
- Weed management response to the predicted increase in disturbance events.

Issue 8: COMMUNITY ENGAGEMENT AND PARTNERSHIP

Sustainability Education Community Engagement programs

Environmental Education in BMCC has four main ways of communicating and engaging on environmental protection: informing, consultative, collaborative and empowering. Environmental Education has both a general overview about environmental protection and runs targeted and specific programs about waterways restoration, biodiversity protection and waste reduction.

Information is made available via brochures, posters, stalls at festivals and other community events, advertisements and articles in local media and specific community newsletters.

The program areas include:

Waste Education – a program of 5 or 6 two hours sessions of what was formally known as Earth Works and now is being delivered as Eco-choices. This program is delivered on a rotation basis across the mountains. A brief section on weeds and sustainable disposal of weed material is included.

Education in Environmental Management – includes a range of core and grant funded programs to engage with residents and visitors to the Blue Mountains.

Resident Target audiences:

- Householders – new in the LGA, first home owners, retirees and transition to retirement, renters,
- Schools – organisation, students and parents
- Community organisations - such as pre-schools, Aboriginal groups and neighbourhood centres.
- Small businesses.

Bushcare and Landcare program

There are currently 68 Bushcare and Landcare groups supported by Council. This is a significant expansion from 37 groups in 2001. This is the result of continuing high demand from the community to start new Bushcare groups on Council managed land and the expansion of the program to encompass Landcare groups working on high conservation value private lands. There is at least one Bushcare or Landcare group in all but two towns in the LGA.

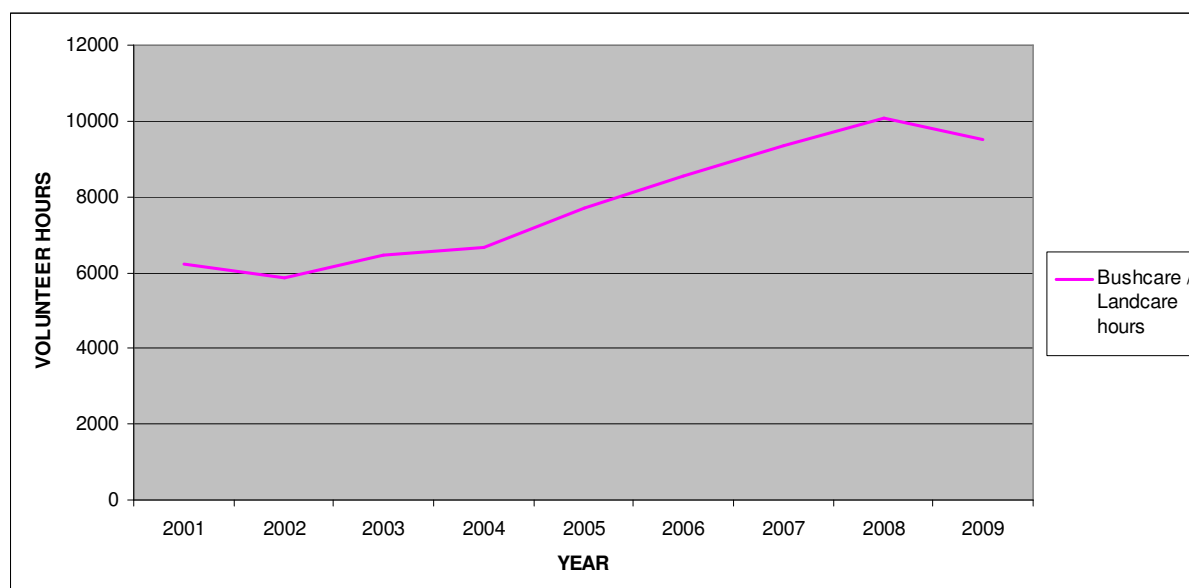


Figure 11: Upward trend of community participation in Bushcare since 2001

The Blue Mountains Bushcare program has been supporting community volunteers working in bushland on Council land since 1992. In 2001 the program was expanded to include groups working on high value bushland on private land (Landcare).

Benefits to Council and the community include:

- Achieving conservation outcomes by site remediation;
- An increased level of awareness of bushland management issues among the community;
- Sharing the responsibility of bushland management between Council and the community;
- A pathway for community views to be effectively fed back into Council;
- Improved quality of community life through increased social interaction and sharing of information; and
- Allowing for the development and implementation of management strategies which have strong community commitment and content.



Figure 12: Marianne Bate, Bushcare Volunteer at Mitchell's Reserve, with a recently weeded Belladonna Lily.

As well as providing tools and on-ground support to groups on their regular workdays, Council supports 490 volunteers in these groups (who contributed 10,074 hours to on ground works in 2008-2009) in the following ways:

- Skill development and OHS training;
- Development of support resources such as training manuals;
- Maintains current information on Weeds of Blue Mountains Website;
- Maintains volunteer database;
- Produces Gecko newsletter which is distributed to everyone on the volunteer database;
- Supports Bushcare Network which is the representative body of the volunteers;
- Runs community education workshops and special events such as Remote Bushcare and catchment work days;
- Runs special events to inform community about specific conservation issues and support other targeted environmental management programs (e.g. Swampcare);
- Support with grant applications for conservation works on private lands;
- Programmed works by the bush regeneration and noxious weeds teams on and around reserves specifically to support the works of Bushcare groups.

Council currently employs 6 part time Bushcare officers and one full time Bushcare Co-ordinator. The Community Weeds Officer also supports some Landcare groups. The Bushcare section is now almost at full capacity with very limited ability to service any new groups.

The current model of support for Bushcare groups has been in place since 1997. Since then the number of groups has grown (from 18 to 68), Landcare has also become part of the program and various other models of support have been trialled with individual groups. The trend over recent years has been increasing levels of community interest and demand for new groups which the Bushcare program has been struggling to meet. It is proposed that the Bushcare Policy will be reviewed in 2011-12 and that as part of this process the current program model will be reassessed to ensure efficiency and best use of resources while continuing to provide effective support to groups.

Private land extension

As well as the Landcare program Council's other programs to address weeds and other conservation issues on private land are:

- **Resident Weed Support Service**

A service available to all residents which addresses weed awareness and skill development for sustainable effective weed control. The service provides on -site advice on request to landowners to help them achieve successful weeds management. Blue Mountains Living courses are also offered to residents in priority sub-catchments, covering local weed and conservation issues (see Appendix 4: Blue Mountains Living).

- **Habitat Conservation Network**

The Bush Backyard Network was set up to support and sustain high level on ground outcomes to protect high value assets on private land. Membership of the network is offered to highly committed individual landowners who are shown to be achieving significant conservation outcomes. They receive high-level technical and material support including detailed property management plans, workshops and support with grant funding and project management.

- **Rural Practice Improvements**

This program involves liaison with rural landholders and assistance with training and access to regional grant funding for sustainable land and weed management and pest animal control on rural land, particularly in Megalong Valley and Sun Valley (see Appendix 4: Case Study – Hawkesbury Nepean CMA Model Project – Megalong Valley).

- **Improve Council and other land manager weed management capacity**

The skills of Council staff to effectively manage weeds are improved through:

- Attendance at industry workshops and relevant TAFE courses; and
- Liaison between Bushland Operations staff and construction and maintenance staff to ensure weed awareness and mitigation of degrading impacts is incorporated into on-ground work practices.

Weed management across the LGA would be improved by the sharing of knowledge and skills between land managers. This is expanded by:

- Inclusion of staff from other agencies in local workshops;
- Information sharing through weeds committee; and
- Liaison to share specific local knowledge re effective weed control strategies.

Maintaining and improving access to grant funds and participation in co-operative projects increases capacity for weed control on public and private land across the LGA. Council can stimulate this growth in capacity by ensuring that we:

- Continue liaison with other agencies and regional bodies to formulate and implement co-operative grant funded projects across tenures.
- Continue to use Environment Levy funds to leverage grant funding to resource additional works on key sites.

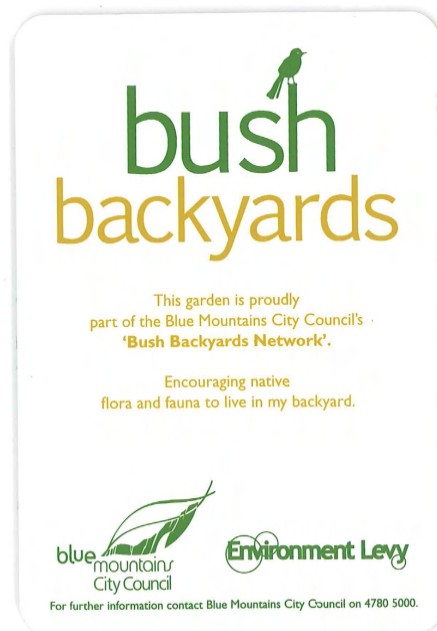


Figure 13: A gate sign used to identify properties participating in the "Bush Backyards" network.

Issue 9: INTEGRATION WITH RELEVANT NATIONAL AND STATE TARGETS

Coordination of Councils weed strategy with national and state targets ensures that our weed control efforts fulfil our statutory responsibilities and are integrated with regional priorities to facilitate participation in cooperative weed control projects and access to funding.

NATIONAL TARGET 1

AUSTRALIAN WEED STRATEGY: Prevent new weed problems

NSW INVASIVE SPECIES PLAN

- Identify high risk pathways for introduction of new weeds and mitigate identified risks of spread.
- Prevent new weeds establishing
- Eradicate or contain new species before they become widespread.

High risk pathways for introduction and spread of new weeds

Pathways identified as potential vectors for new weeds are:

- Horticulture Industry and Nurseries (including market stalls and hardware/ supermarket outlets) which have the potential to introduce new weeds and increase the distribution of existing weed species to new areas. This risk is currently being addressed by a liaison program with nurseries and provision of Weeds of Blue Mountains Bushland booklets to all nurseries. This could be expanded by more targeted weed awareness and incentives. A local Bush Friendly Nursery scheme and expansion of the Sustainable Gardens project are both being investigated. The Nursery and Garden Industry NSW and ACT (NGINA) 'Grow Me Instead' project actively encourages nurseries and consumers to use alternatives to known weed species. This project has published several booklets identifying weed species and suggested alternative plants which could usefully be used as models for similar Blue Mountains specific publications.
- Earthmoving activities can spread weed propagules both in fill and on machinery. New weeds can be spread when fill or machines are brought from other localities and existing weeds can be spread into new areas. Unconsolidated soil can also contribute to increased weed habitat downstream. This risk can be mitigated by targeted educational printed material circulated to contractors and Council staff. Council could also build best practice guidelines into contracts or conduct weed awareness inductions when employing new contractors. Training and workshops could be offered to the local industry with a certificate of attendance conferring recognition of a 'weed aware' business.
- The transport corridor is a high risk environment for the transport and establishment of new weeds from vehicle movement or introduction of weeds during new construction projects. This risk can only be managed through ongoing close cooperation with the RTA and Railcorp to implement joint control plans, facilitate access for Council weed control and weeds inspections and ensure that no potential weed species are included in new plantings.
- Landscaping and erosion control materials can inadvertently contain new weed propagules. Erosion control plantings may also introduce new weed species or contain weed propagules. An awareness campaign for relevant Council staff and local suppliers, coupled with Council officer and Bushcare group vigilance particularly when installing materials from overseas would reduce this risk.
- Vectors such as birds, foxes wind and water can spread new weeds from private and public lands in adjoining areas. Liaison with landowners to reduce or control seed production of potentially

weedy plants and timely control of new infestations can reduce the potential for establishment of new populations.

Target weed programs

The focus of Council's target weed control programs is widespread and high risk species which are particular threats to conservation assets, agricultural production, human health or social amenity and/or in which there has already been significant investment. The program also targets new species which can be eradicated or contained before they become established.

To exclude and/or eradicate can be difficult medium term targets given the budgets available. In most cases we are looking at containment and a long pathway to eradication (see Appendix 3: Large Scale Clearing of Weeds).

There are some noxious and environmental weeds which occur in the Blue Mountains which are currently rare or not found in other parts of the Sydney basin or western plains which have the potential to spread and cause significant environmental and economic impacts. There are also some species occurring in these neighbouring regions which are not yet found in the Blue Mountains.

The Blue Mountains LGA is the landscape bridge between these two areas through which new weeds could potentially spread. Council has an important role as a regional partner to prevent further spread of these species.

The Sydney Regional Weeds Committees' Weeds Alert reporting system is being developed by the weeds committees to help agency staff, contractors and the community to detect and report new and emerging weeds so that they are rapidly controlled and prevented from spreading to new areas.

Introduction of new weeds is likely to become more of an issue as predicted climate change effects are expected to include expansion of the range of some weeds.

Species Risk assessment

Council currently has a number of weed lists which can be used by community and staff to identify weed species which occur or are likely to occur in the area.

- The noxious weeds list identifies all species listed as noxious for the Blue Mountains LGA under the Noxious Weeds Act 1993; and
- The Council approved list is the Weeds of the Blue Mountains list contained in the Better Living DCP (Appendix 2).

These are static lists compiled on the basis of local knowledge at the time. They are used as a tool to discourage sale of identified weeds, exclude known weeds from plantings in new developments on both private and public lands and to inform Council's weed control strategies (see also 1.4- Weeds, Planning and Development Assessment and Approval Process).

It is widely agreed that a single Council weed list which could be periodically updated to reflect changing conditions and new knowledge would be a more useful tool. Such a list could be consistently used throughout Council to inform planning and on-ground decision making and provide a clear direction to public and private developers regarding recognised weed species in the LGA. A consistent, scientifically valid set of criteria needs to be adopted to ensure that the inclusion of any species on the list is justified. Prioritisation of species according to level of risk is also required to direct target weed resource allocation and educate the community on the relative importance of various weed species.

Council has assessed all Class 4 weeds on the noxious weeds list according to the NSW Weed Risk Management System in order to justify their continued listing.

It is proposed that this system developed by the I&I NSW for consistency at various geographic scales across the state, should be used to produce a new Council wide weeds list. All weeds would be

subject to the NSW Weed Risk Management system process which scores species according to a combination of weed risk (invasiveness, impacts and potential distribution) and feasibility of control (control cost, persistence and current distribution) (See Appendix:1 for reference to process).

The use of this state validated system would provide a consistent, transparent approach to inclusion of weeds on the list and would allow for periodic updating to ensure currency.

Using this system weeds are classified as very high to negligible for weed risk and feasibility of control. Further investigation and development is required as to how these categories can be used to direct inclusion or exclusion from the list and inform resource allocation. For example a weed which is categorised as medium or low risk and low feasibility of control may be included on the list to ensure no new plantings but not be regarded as a high priority for Council target weed control programs. If the proposal to create a Council-wide, 'live' weed list is adopted further investigation will be required to apply these methodologies to the local situation. Future reports will outline timeframes, opportunities for community input and how the new list would be applied.

NATIONAL TARGET 2

AUSTRALIAN WEED STRATEGY: Reduce the impact of existing priority weed problems

NSW INVASIVE SPECIES PLAN:

- Manage or control widespread weed species to reduce their impact where benefits of control are greatest; and
- Reduce the impact of widespread weed species on key assets.

Protect high value assets

Council programs for on-ground control of widespread weeds will be targeted at:

- Identified key reserves (based on conservation values, previous investment and community values and investment) in priority sub-catchments in each conservation landscape;
- Public amenity in reserves - access to tracks and lookouts;
- Public infrastructure – integrity of public buildings, sports grounds and drainage;
- Urban public amenity – access and safety on roads and footpaths; and
- Key target weed species which are particular threats to conservation assets, human health or social amenity (identified through Weed Risk assessment).

Programs for control of widespread weeds on private land will be targeted at:

- Priority sub-catchment landscapes to mitigate impacts on key conservation assets; and
- Potential or existing impacts on urban public amenity and infrastructure.

Integrated works in priority sub-catchments

Strategic investment of Council resources will be primarily targeted in priority sub-catchments.

The priority sub-catchment program was developed out of the Blue Mountains Urban Runoff Control program (1996-2003) catchment selection process. Details of criteria for the original selection of catchments under this program and Council's current criteria are included in Appendix 2: Priority subcatchment landscape selection process.

Current selection of priority sub-catchments for intensive, integrated works is based on:

- High conservation values;
- Existing impacts which are causing severe degradation of bushland and ecological values;
- Previous investment in ongoing restoration works in part or all of the catchment;
- Community values and investment primarily reflected in the presence of Bushcare and Landcare groups in the catchment; and
- Equity of expenditure across the entire local government area.

Council is currently updating the priority sub-catchment selection process to also take into account results of Council water quality monitoring and field and desk top assessments.

Degraded lands and bush regeneration works programs for Council's bush regeneration team and grant funded contractor works are focused in key reserves in these sub-catchments in each landscape.

Noxious weeds and private land extension works are then concentrated on the target sub-catchments around these reserves. Over time all sub-catchments in the LGA will be targeted using this integrated approach.

NATIONAL TARGET 3

AUSTRALIAN WEEDS STRATEGY: Enhance Australia's capacity and commitment to solve weed problems

NSW INVASIVE SPECIES PLAN:

- Build capacity at all levels of government and in the wider community to address weed problems and improve weed management.

Council capacity

Council capacity to deliver weed management outcomes is significantly increased by accessing additional funds for on-ground works from Federal and State grant programs.

In order to maintain current outputs in weed management in the Blue Mountains it is important to maintain engagement in these programs.

Community engagement

To achieve this goal council programs aim to overcome identified impediments to community engagement and effective weed management:

Impediments include:

- Lack of awareness of impacts of weeds on other assets valued by the community (bushland, landscape, habitat, land values);
- Lack of specific skills to effectively treat weeds and manage land to reduce weed invasion;
- Perceptions that government land managers are not adequately engaging in and resourcing weed control;
- Poor behaviour modelling by government land managers (planting weeds);
- Costs of weed control (including cost of permits under the Tree Preservation Order); and
- Lack of awareness and/or specific weed knowledge in expert sectors which people rely on for advice (landscapers and earthmovers/ availability of weeds in nurseries, market stalls and other outlets).



Section 3: STRATEGY AND ACTION PLAN

Comply with National and State strategies and targets / apply to local context and issues.

3.1 BMCC WEED STRATEGY TARGETS

1. Reduce impacts of existing weeds;
2. Prevent establishment of new weed species; and
3. Enhance Council and community capacity to solve weed problems.

3.2 STRATEGIC OBJECTIVES

Objective 1: Protect high value assets and community values from the impacts of widespread weeds.

- 1.1. Protect key conservation values in each conservation management landscape
 - a. Identify and prioritise key flora and fauna values in each landscape which are impacted by widespread weeds (scheduled vegetation units); and
 - b. Implement landscape scale (sub-catchment) control programs for widespread weeds focused on the locations of identified high priority conservation values.
- 1.2. Manage widespread weed issues in urban areas to protect identified public and community assets/values
 - a. Review existing weeds lists based on the NSW Weed Risk Management System process and compile new single Council wide weeds list with capacity for regular review;
 - b. Identify and prioritise weed issues affecting key public safety and access issues and infrastructure for control of widespread weeds; and
 - c. Allocate resources to control of widespread weeds in urban landscape based on identified priorities. Allocate weed management resources where they relate to urban infrastructure maintenance based on identified priorities.

Objective 2: Reduce the impacts of widespread weed species which have significant and extensive impacts where benefits of control are greatest.

- 2.1. Identify target weed species based on risk and track distributions
 - a. Identify and prioritise target weeds based on impacts on local ecosystems, agricultural productivity and threats to human health; and
 - b. Maintain and update weed mapping to track distributions of widespread target weeds.
- 2.2. Allocate resources to control of target species where costs/ benefits are the greatest
 - a. Maintain primary focus on strategic landscape scale programs;
 - b. Prioritise other target weeding programs outside priority sub-catchments according to distribution and impacts in specific catchments (e.g. Himalayan Honeysuckle in Mt Wilson; Serrated Tussock and Blackberry in Megalong Valley);
 - c. Respond to changed conditions - Allocate resources to opportunistically program weed control for target species populations affected by unexpected disturbance events (e.g. mass germination or soil stored seed transport following fire and flood); and
 - d. Prioritise CSR responses based on weed risk assessment and noxious weeds responsibilities.

Strategic Objective 1 & Objective 2 address Target 1 and meet the following national and state goals:

AUSTRALIAN WEED STRATEGY: Reduce impacts of existing priority weed problems

NSW INVASIVE SPECIES PLAN: Effectively manage – reduce the impacts of widespread invasive species.

HNCMA WEED STRATEGY: (regional targets)

- Invasive species control programs report sustained success.
- Reduction in conditions favouring weed invasion primarily through improvements in ecosystem functionality /health.

Objective 3: Prevent introduction and establishment of any new high risk weed species.

- 3.1. Implement Local Weed Alert and Emerging Weeds List
 - a. Identify high risk weed species which have the potential to establish in the LGA and emerging high risk weeds based on Regional Weed Alert List and local Weed Risk Assessment;
 - b. Implement process to verify and document new sightings; and
 - c. Ensure relevant staff and community have access to list and necessary identification skills.
- 3.2. Mitigate risk of new weed introductions
 - a. Identify high risk pathways for introduction or spread of new weeds; and
 - b. Implement barriers to mitigate identified risks.
- 3.3. Prevent spread of existing populations of emerging high risk weeds
 - a. Prioritise and map distribution of emerging high risk weeds in LGA;
 - b. Program appropriate levels of control to eradicate or contain known populations; and
 - c. Implement monitoring process to ensure effectiveness of controls.

Strategic Objective 3 addresses Target 2 and meets the following national and state goals:

AUSTRALIAN WEED STRATEGY: Prevent establishment of new species

NSW INVASIVE SPECIES PLAN:

- Exclude – prevent the establishment of new invasive species
- Eradicate or contain – eliminate or prevent the spread of new invasive species

Objective 4: Expand Council's capacity to manage weed issues.

- 4.1. Access increased resources for weed management
 - a. Maintain participation in grant programs to maintain government investment in weed management on public and private land across the City; and
 - b. Develop cross-agency relationships to expand co-operative projects which increase investment in weed control across LGA.
- 4.2. Expand weed management skills of Council staff

- a. Facilitate staff participation in industry training and workshops;
 - b. Encourage skills and knowledge exchange between relevant teams to reduce degrading impacts and weed spread and improve weed management across all areas with land management responsibility; and
 - c. Maintain a skilled workforce by planning for weed staff development and succession.
- 4.3. Increase effectiveness of council weed management programs
- a. Monitor outcomes; and
 - b. Implement flexible delivery/adaptive management to address emerging issues.

Objective 5: Maintain and expand community motivation and capacity to contribute to weed management.

- 5.1. Motivate private landowners to proactively manage weeds
- a. Increase community awareness of local weed issues (weeds booklet and website);
 - b. Increase community understanding of Council's strategic weed management programs and resource allocation priorities;
 - c. Address obstacles to landowner weed control (Tree Preservation Order (TPO), increase skills);
 - d. Effective application of noxious weeds regulations;
 - e. Development and implementation of incentive programs to encourage sustainable weed and biodiversity outcomes; and
 - f. Utilise the development assessment process to identify and control existing and future weeds on development sites.
- 5.2. Identify and develop opportunities for community involvement
- a. Workshops targeted to appeal outside traditional volunteer base;
 - b. Incorporate weed themes into regular City-wide Events and township based target events;
 - c. Encourage community partnerships in target projects (Great Grose Weed Walk; North Katoomba Broom Blitz) to appeal to existing and new volunteers and groups outside traditional bushcarers, e.g. Bushwalkers;
 - d. Involve community 'experts' in consultation to develop strategic programs; and
 - e. Support the formation of new Bushcare and Landcare groups.
- 5.3. Maintain and build on existing volunteer networks (Bushcare and Landcare program)
- a. Continue Council's commitment to the Bushcare program; and
 - b. Review opportunities to enhance the Bushcare program.

Strategic Objective 4 & Objective 5 address Target 3 and meet the following national and state goals:

AUSTRALIAN WEED STRATEGY: Enhance Australia's capacity and commitment to solve weed problems.

NSW INVASIVE SPECIES PLAN: Capacity – ensure NSW has the ability and commitment to manage invasive species.

3.3 FIVE YEAR ACTION PLAN					
STRATEGIC OBJECTIVES¹	ACTION	RESPONSIBILITY	PERFORMANCE INDICATOR	COST	SOURCE
1. Objective: Protect high value assets and community values from the impacts of widespread weeds.					
1.1 Protect key conservation values in each conservation landscape					
a. Identify and prioritise key flora and fauna values in each landscape which are impacted by widespread weeds	Identify and prioritise scheduled vegetation units in each landscape impacted by widespread weeds	Bushland Management Officer	Cross tenure weed control programs reduce impacts on identified key conservation values in each landscape	Already in place	Existing programs ²
b. Implement subcatchment programs for control of widespread weeds focused on the locations of identified high priority conservation values.	Primary focus of annual weed control programs is on high priority subcatchments Co-ordinate subcatchment programs with other land owners to protect conservation values	Bushland Management Officer • Bushland Management Officer • Community Weeds Officer • Noxious Weeds Team		75 % total weed management budget + external grants	Existing programs (Bush Regeneration, Urban Weed Control, Rehabilitation of EECs, Habitat Conservation Network, Rural practice improvements) + external grant

¹ Refer to 3.2 Strategic Objectives

² Core Environmental Management and Environment Levy programs

3.3 FIVE YEAR ACTION PLAN					
STRATEGIC OBJECTIVES¹	ACTION	RESPONSIBILITY	PERFORMANCE INDICATOR	COST	SOURCE
					funding
1.2 Manage widespread weed issues in urban areas to protect identified public and community assets/ values					
a) Review existing weeds lists based on the NSW Weed Risk Assessment process and compile new single Council wide weeds list with capacity for regular review.	Review current Council weeds lists (Better Living DCP, Bushcare list) and categorise using NSW Weed Risk Assessment process.	<ul style="list-style-type: none"> Community Weeds Officer Bushland Management Officer Bushcare Team Noxious Weeds Team Bush Regeneration Team Environment and Landscape section- Environmental and Customer Service (EANDCS) City Planning 	<p>Updated Council weed list guides management priorities based on objective assessment process</p> <p>Updated Council weed list provides clear guidance to other agencies and community on levels of risk to the environment and public amenity associated with identified weed species</p>	40 staff days over 2 years	Existing programs
	Investigate feasibility of adopting reviewed list for multiple Council uses	<ul style="list-style-type: none"> Community Weeds Officer E&CS (Environment 		5 staff days	

3.3 FIVE YEAR ACTION PLAN					
STRATEGIC OBJECTIVES ¹	ACTION	RESPONSIBILITY	PERFORMANCE INDICATOR	COST	SOURCE
		and Landscape) • City Planning			
	Investigate implementing review process to allow regular updating of list	• Community Weeds Officer • E&CS (Environment and Landscape) • City Planning		2 staff days + 2 staff days annually	
b) Identify and prioritise weed issues affecting key public safety and access issues and infrastructure for control of widespread weeds	Determine key issues and rank priorities Determine work response allocation based on priorities Listed priorities to be used as basis for CSR responses and weed related infrastructure maintenance	• Assets • Bushland Management Officer • Noxious Weeds Team	List produced and appropriate work responses determined	4 staff days	Existing programs
c) Allocate resources in urban areas: • Allocate CSR resources to control of widespread weeds in urban landscape based on identified priority issues		• Assets • Bushland Management • Noxious Weeds Team	Weed management resources in urban areas are managed to address highest priority infrastructure and public safety and access issues	Incorporate into existing process	Existing programs
• Allocate weed management resources where they relate to urban				Incorporate into existing process	Existing programs

3.3 FIVE YEAR ACTION PLAN					
STRATEGIC OBJECTIVES ¹	ACTION	RESPONSIBILITY	PERFORMANCE INDICATOR	COST	SOURCE
infrastructure maintenance based on identified priorities					
2. Objective: Reduce the impacts of widespread weed species which have significant and extensive impacts where benefits of control are greatest.					
2.1 Identify target weed species based on risk and track distributions					
a) Identify and prioritise target weeds based on impacts on local ecosystems, agricultural productivity and threats to human health	Use NSW Weed Risk Assessment 'Weed Risk' analysis (from 1.1) to prioritise resource allocation based on risks	<ul style="list-style-type: none">Bushland ManagementBushland Operations	Target weeds programs prioritised according to risk and distributions mapped	Risk analysis incorporated into Action 1.1 Resource allocation part of existing process	Existing programs
b) Maintain and update weed mapping to track distributions of widespread target weeds	Review current program and revise to produce 5 Year monitoring and mapping plan	<ul style="list-style-type: none">Noxious Weeds TeamGIS Officer		2 staff days annually review and revise plan	Existing programs
	Update distribution mapping of selected target weeds and locations			23 days annually for data collection 2 staff days annually update maps	

3.3 FIVE YEAR ACTION PLAN					
STRATEGIC OBJECTIVES¹	ACTION	RESPONSIBILITY	PERFORMANCE INDICATOR	COST	SOURCE
2.2 Allocate resources to control of target species where costs/ benefits are the greatest					
a) Maintain primary focus of target weeding on strategic landscape scale programs for most effective weed control outcomes and conservation benefits	Maintain primary weed management budget allocation to subcatchment programs (As for 1.2.b.)	<ul style="list-style-type: none"> Bushland Management Officer Noxious Weeds Team Bush Regeneration Team 	Target species distributions effectively reduced to protect key assets	As per 1.1.b	As per 1.1.b
b) Prioritise other target weeding programs outside priority subcatchments according to distribution and impacts in specific catchments	Prioritise target weeds programs to species and locations where NSW Weed Risk Management system scores indicate highest priority. Utilise WoNS decision support tools (e.g. The Lantana Plan) where available to inform priorities.	Bushland Management Officer		Costed annually in response to Risk Assessment outcomes and local issues	Existing programs + external grants
c) Respond to changed conditions - Allocate resources to respond to unexpected disturbance events resulting in high risk weed issues	Create contingency to respond to unexpected disturbance events by identifying lowest priorities in annual weed programs that can be delayed to allow reallocation of resources	Bushland Management Officer	Weed expansion following unexpected disturbance events reduced	As appropriate to determined risk	Existing programs + external grants
d) Prioritise CSR responses (Weeds categories) based on weed risk	Process formulated to guide CSR responses (Weeds) based on categories of weed risk assessment	<ul style="list-style-type: none"> Bushland Management Officer 	Transparent , consistent process ensures CSR resources allocated	4 staff days to assess.	Existing programs

3.3 FIVE YEAR ACTION PLAN					
STRATEGIC OBJECTIVES¹	ACTION	RESPONSIBILITY	PERFORMANCE INDICATOR	COST	SOURCE
assessment and noxious weeds responsibilities	and noxious weeds responsibilities	<ul style="list-style-type: none"> Bushland Operations 	for highest cost/ benefit	Implementation incorporated into relevant programs	
3. Objective: Prevent introduction and establishment of any new high risk weed species					
3.1 Implement Local Weed Alert List					
a) Identify high risk weed species which have the potential to establish in LGA and emerging high risk weeds based on Regional Weed Alert List and local Weed Risk Assessment	Local list produced based on Regional Weeds Committee list	Noxious Weeds Team	Local alert list and emerging weeds identified and documented Incorporate Alert List and emerging weeds into single Council weed list (1.2.a)	2 staff days to compile list and design documentation process	Existing programs
b) Implement process to verify and document new sightings	Reporting and control process in place	<ul style="list-style-type: none"> Noxious Weeds Team Bushland Management Officer 	List informs and influences monitoring plan (3.3.c.)	1 staff day annually to verify and document	
c) Ensure relevant staff and community have access to list and necessary identification skills	<ul style="list-style-type: none"> List circulated to relevant staff and community networks ID workshops / training provided 	<ul style="list-style-type: none"> Bushcare Team Community Weeds Officer 	Relevant staff/ community skilled in identification of high risk weeds	4 staff days \$5,000 workshop costs	Unallocated Seek grant funding

3.3 FIVE YEAR ACTION PLAN					
STRATEGIC OBJECTIVES¹	ACTION	RESPONSIBILITY	PERFORMANCE INDICATOR	COST	SOURCE
3.2 Mitigate risk of new weed introductions					
a) Identify high risk pathways	Identify specific locations or industry groups with high potential to be implicated in new weed introductions		Local pathways identified	Already in place	
b) Implement barriers to mitigate risks	Formulate and implement regulatory processes to target high risk pathways	Noxious Weeds Team	Combination of regulatory processes and education program effectively identifies and manages any new high risk weed introductions	4 staff days to set up + 20 staff days annually to implement	Unallocated Seek grant funding
	Formulate and implement education program for relevant industry, private landowners and agency staff (industry workshops, media)	<ul style="list-style-type: none"> Community Weeds Officer Noxious Weeds Team 		2 industry workshops + media = 8 staff days annually + \$5,000	Unallocated Seek grant funding
	Emphasise the use of local native and non invasive species in landscaping plans during development assessment process and in Council consultations with major public landscape developers (e.g. RTA)	<ul style="list-style-type: none"> E&CS City Planning 		Already in place	Existing programs
	Bush Friendly Nursery Scheme	<ul style="list-style-type: none"> Sustainability 		20 staff days set up	Existing programs

3.3 FIVE YEAR ACTION PLAN					
STRATEGIC OBJECTIVES¹	ACTION	RESPONSIBILITY	PERFORMANCE INDICATOR	COST	SOURCE
		Education <ul style="list-style-type: none"> Community Weeds Officer Bushcare Team 		Scheme + 15 staff days annually to maintain Scheme	
	Formulate hygiene protocols and circulate to relevant industry and staff	<ul style="list-style-type: none"> Community Weeds Officer Noxious Weeds Team 		5 staff days	Existing programs
3.3 Prevent spread of existing populations of emerging high risk weeds					
a) Prioritise and map distribution in LGA	Maintain and update existing mapping	Noxious Weeds Team	Effective containment of newly identified and emerging weeds on public and private lands results in no further spread of target species.	Baseline already in place Update included in 2.1.b.	Existing programs
b) Implement integrated control programs	Continue control programs to contain or eradicate known populations and monitor for efficacy	Urban Weeds Team		15 staff days	Existing programs
c) Monitor to ensure effective control	Investigate inclusion of all new and emerging high risk species into noxious weeds list to allow enforcement on private land	Urban Weeds Team		4 staff days	Existing programs

3.3 FIVE YEAR ACTION PLAN					
STRATEGIC OBJECTIVES¹	ACTION	RESPONSIBILITY	PERFORMANCE INDICATOR	COST	SOURCE
4. Objective: Expand Council's capacity to manage weed issues					
4.1. Access increased resources for weed management					
a) Maintain Council participation in grant programs to maintain investment in public and private land across the City.	<ul style="list-style-type: none"> Maintain and develop regional participation and partnerships Identify synergies between Council programs and biodiversity and weeds grant program targets to maximise opportunities to source existing funds 	Natural Systems Team	High priority strategic programs are supported by additional funds	35 staff days annually	Existing programs
b) Develop cross-agency relationships to expand co-operative projects which increase investment in weed control across LGA / direct flow on benefits to management of Council land	<ul style="list-style-type: none"> Maintain and develop partnerships with key agencies (National Parks, RTA, Railcorp, Sydney Water, SCA) through weeds committees and personal contact Involve agencies in cross tenure subcatchment projects 	Natural Systems Team	Cross tenure projects improve weed control outcomes across LGA	20 staff days annually	Existing programs
4.2 Expand weed management skills of Council staff					

3.3 FIVE YEAR ACTION PLAN					
STRATEGIC OBJECTIVES¹	ACTION	RESPONSIBILITY	PERFORMANCE INDICATOR	COST	SOURCE
a) Facilitate staff participation in industry training and workshops	<ul style="list-style-type: none"> Identify skill development opportunities in staff performance reviews(PPRS) Budget for staff skills development 	Branch Management and Team Leaders	Weeds staff increase skills and keep abreast of current best practice weed management	Minimum 10 staff days annually	Existing programs
b) Encourage skills and knowledge exchange between relevant teams to reduce degrading impacts and weed spread and improve weed management across all areas with land management responsibility	<ul style="list-style-type: none"> Define workshop program and internal target audience Conduct a minimum of 2 internal workshops for staff per year 	Branch Management and Team Leaders	All staff with some impact on weed management develop increased weed knowledge and skills	Minimum 10 staff days annually	Existing programs
c) Plan for weed staff development and succession	<ul style="list-style-type: none"> Maintain conservation based traineeships Staff mentoring in strategic program design and implementation 	Branch Management and Team Leaders	Skilled workforce maintained	Already in place	Existing programs
4.3 Increase effectiveness of council weed management programs					
a) Monitor outcomes	Staff training in Monitoring,	<ul style="list-style-type: none"> Bushland 	Weed management programs	5 staff days	Existing programs

3.3 FIVE YEAR ACTION PLAN					
STRATEGIC OBJECTIVES ¹	ACTION	RESPONSIBILITY	PERFORMANCE INDICATOR	COST	SOURCE
	Evaluation, Reporting and Improvement (MERI)	Management <ul style="list-style-type: none">Bushland Operations	enhanced by continuous improvement process	annually	
b) Improve flexible delivery /adaptive management to address emerging issues	Monitoring outcomes used to inform future works programs			Already in place	Existing programs
5. Objective: Maintain and expand community motivation and capacity to contribute to weed management					
5.1 Motivate private landowners to proactively manage weeds					
a) Increase community awareness of local weed issues	Review and assess current weed education and communication strategy	<ul style="list-style-type: none">BushcareCommunity Weeds OfficerSustainability Education	Increased community understanding of weed issues and management practices results in more effective weed management on private land	10 staff days	Existing programs
	<ul style="list-style-type: none">Implement target weed education activities to address local issues and demographics (e.g. Blue Mountains Living Courses; Bushcare and Swampcare special events; Garden Club attendance)Maintain and develop communication tools – Weeds of Blue Mountains Bushland booklet and Weeds Website			25 staff days annually	Existing programs

3.3 FIVE YEAR ACTION PLAN					
STRATEGIC OBJECTIVES¹	ACTION	RESPONSIBILITY	PERFORMANCE INDICATOR	COST	SOURCE
b) Increase community understanding of Council's strategic weed management programs and resource allocation priorities	<ul style="list-style-type: none"> Publicity and education programs explain Council's strategic weed management and resource allocation priorities and highlight successes Include explanations of Council strategies on Weeds Website Publicise progress on weed management strategy objectives and actions in regular bulletins to media / interest groups Inform residents of relevant sections of this weed management strategy when responding to CSRs 	<ul style="list-style-type: none"> Bushcare Community Weeds Sustainability Education 		Further development 6 staff days annually	Existing programs
c) Address obstacles to landowner weed control	Maintain resident weed support service to improve weed management skills	Community Weeds Officer	Increased landowner weed management skills and support for removal of weed trees results in more effective weed management on private land	50 staff days annually	Existing programs
	Investigate linkage of TPO with weeds lists to expand species which are exempt	<ul style="list-style-type: none"> E&CS Community Weeds Officer 		8 staff days	Existing programs
d) Effective application of noxious weeds	<ul style="list-style-type: none"> Noxious weeds private land inspection process includes 	<ul style="list-style-type: none"> Noxious Weeds Team Community Weeds 	Increased effectiveness of landowner weed management	Incorporated into current practice	Existing programs

3.3 FIVE YEAR ACTION PLAN					
STRATEGIC OBJECTIVES¹	ACTION	RESPONSIBILITY	PERFORMANCE INDICATOR	COST	SOURCE
regulations	extension to improve landowner weed management skills <ul style="list-style-type: none"> Equitable enforcement of regulatory process 	Officer	efforts Improved cross tenure weed management Effective control of target species (all landowners treat targeted weeds in focus areas)		
e) Development and implementation of incentive programs to encourage sustainable weed and biodiversity outcomes	<ul style="list-style-type: none"> Provide targeted extension and support services to private landowners (Resident Weed Support/ Bush Backyards/ Rural Practice Improvements) Facilitate private landowner access to State and Federal weed management grants 	Community Weeds Officer	More effective weed management on private lands in key locations	180 staff days annually	Existing programs
f) Utilise the development assessment process to identify and control existing and future weeds on development sites	<ul style="list-style-type: none"> Require weed control as part of development consent conditions Emphasise the use of local native and non invasive species in landscaping plans 	E&CS	Increased community understanding of weed issues and management practices results in more effective weed management on private land	Already in place	Existing programs (Development Assessment and Monitoring)
5.2 Identify and develop opportunities for community involvement					

3.3 FIVE YEAR ACTION PLAN					
STRATEGIC OBJECTIVES¹	ACTION	RESPONSIBILITY	PERFORMANCE INDICATOR	COST	SOURCE
a) Target beyond traditional volunteer base b) Incorporate weed themes into regular City-wide Events	<ul style="list-style-type: none"> Targeted Workshops include in 5.1.a Weed focus in Environment Events 	<ul style="list-style-type: none"> Bushcare Team Community Weeds Officer Sustainability Education 	More community involvement in weed management programs	Incorporated into current practice + additional 3 staff days annually	Existing programs
c) Encourage community partnerships in target projects	Partnerships in target projects	<ul style="list-style-type: none"> Bushcare Team Community Weeds Officer Sustainability Education Natural Systems Project Officers 	Local projects more effective	Incorporated into current practice for some projects	Existing programs
d) Involve community experts in consultation to inform local control targets	Develop opportunities for volunteer groups and experienced individuals to provide input into design and implementation of programs delivered at the local level	<ul style="list-style-type: none"> Bushcare Team Community Weeds Officer Sustainability Education Natural Systems Project Officers 		Additional community meetings / consultation process = 5 staff days annually	Existing programs
	Develop a Megalong Valley Weed Management Operational Plan in consultation with rural landowners	<ul style="list-style-type: none"> Community Weeds Officer Noxious Weeds Team 		Additional community meetings / consultation process	Existing programs

3.3 FIVE YEAR ACTION PLAN					
STRATEGIC OBJECTIVES¹	ACTION	RESPONSIBILITY	PERFORMANCE INDICATOR	COST	SOURCE
				-& formulate plan = 12 staff days	
e) Support the formation of new Bushcare and Landcare groups	Review current Bushcare and Landcare program to enable support of new groups	<ul style="list-style-type: none"> Bushcare Team Community Weeds Officer 		Included in 5.3.b	Existing programs
5.3 Maintain and build on existing volunteer networks (Bushcare and Landcare program)					
a) Continue Council's commitment to the Bushcare program	Provide sufficient resourcing to sustain the Bushcare program	Branch Management and Team Leaders	Existing networks maintained	Already in place	Existing programs
b) Review opportunities to increase participation in the Bushcare program	Review Bushcare Policy to allow organisation to facilitate additional groups and capacity building	<ul style="list-style-type: none"> Bushcare Community Weeds 		10 staff days	Existing programs



APPENDICES

COMPLETE NOXIOUS WEEDS LIST FOR BLUE MOUNTAINS³

http://www.weedsbluemountains.org.au/noxious_weeds.asp

OR

<http://www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/noxweed> (select 'Blue Mountains' in 'Choose a control area')

NSW WEED RISK MANAGEMENT SYSTEM⁴

<http://www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/wrm-system>

NOXIOUS WEEDS ENFORCEMENT PROCESS⁵

Background

Council operates a noxious weeds inspection program and is delegated as a Local Control Authority under the Noxious Weeds Act 1993. This allows us to delegate staff as inspectors, who in turn inspect private properties, offer weed control advice and issue notices as appropriate.

Council inspects over 1600 properties per year in a coordinated and strategic approach. Areas designated as "sub catchments" are systematically inspected to ensure entire precincts are controlling weeds in a similar timeframe. Council also undertakes all weed control on our land within the same area prior to private property inspections taking place. This greatly improves the efficiency of weed control for everyone as areas are not being re-infested from uncontrolled parcels of land.

It also allows Council officers the opportunity to protect previous investment of high conservation assets downstream of inspection zones. All of our sub-catchment areas have had a long history of weed control within the public reserves. This includes volunteer Bushcare/Landcare hours, State and Federal Grant Projects and Council's Environmental Levy and core funding.

³ Refer Sec:1.2 -Noxious Weeds Legislation;

⁴ Refer Sec: 2- Issue: 9, Target 1- Species Risk Assessment; Sec: 3.2 Strategic Objectives 1.2a

⁵ Refer Sec:1.2- Noxious weeds legislation: The Inspection & Enforcement process

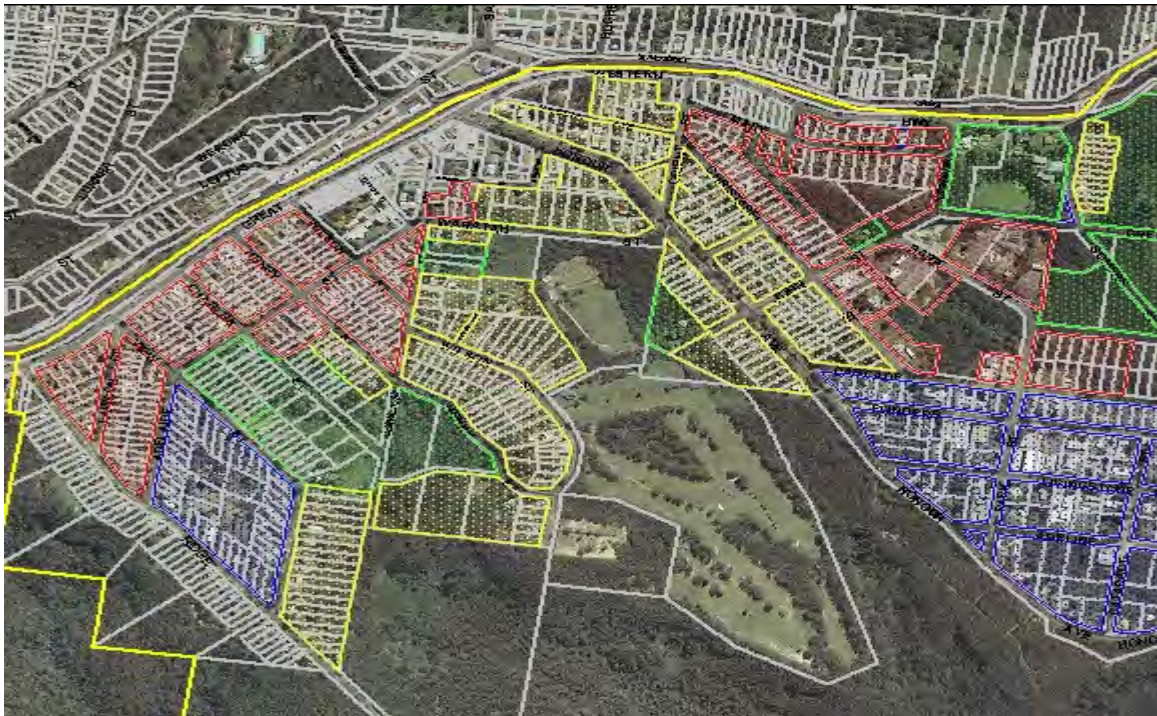


Figure 14: South Lawson Noxious Weed Inspection Areas

An example of a sub-catchment inspection process is provided in Figure 14. This is an aerial image of South Lawson, and each colour represents an annual inspection "sector". This entire sub-catchment will take four years to complete.

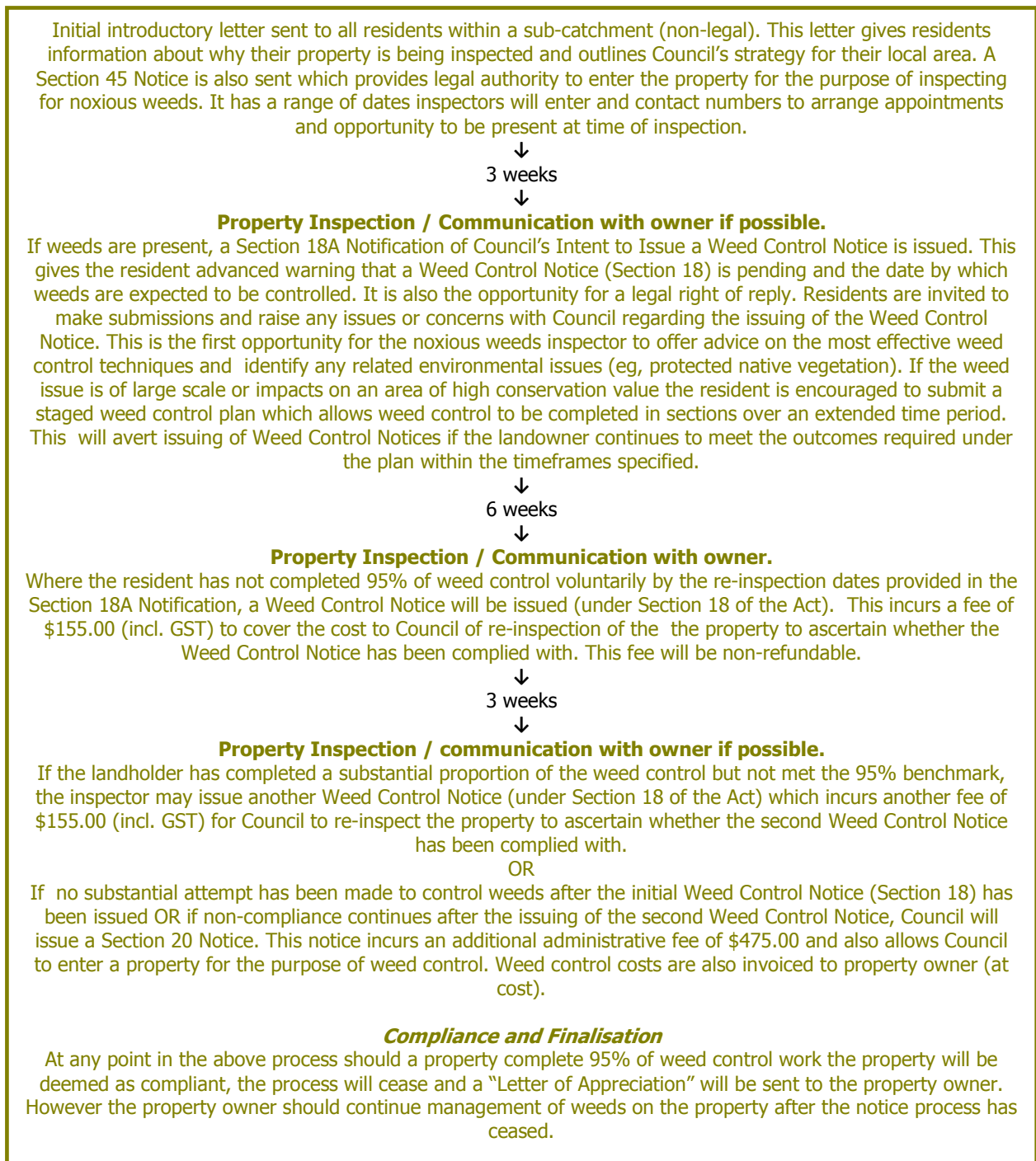
The Inspection and Enforcement Process

The aims of our Noxious Weeds enforcement process is to create a system that initially utilises a friendly extension style approach focussing on educational material and technical support, but gradually backs itself more strongly against the legislation if non-compliance is apparent.

The processes followed by our staff are listed in the teams "Operators Manual" and are include below. These processes have been developed to achieve the following aims:

- Control weeds on private lands;
- Legislated Compliance - adhere to Noxious Weeds Act 1993;
- Efficiency – each inspectors can complete up to 500 inspections per annum;
- Consistency – Every property is treated in a similar manner; and
- Accountability – a full record is kept of every property and action taken.

A typical Summary of a full inspection of a property would follow a path as follows:



NB. This is the current process as of October 2010, but modifications may be made over time in response to changes in state or local government policy.

Conclusion

Blue Mountains City Council has been developing and refining its noxious weeds enforcement process for the past 25 years. The modern version we have today is one which is focused on reducing an adversarial response between residents and Council and maximising the conservation benefit to our high conservation reserves and World Heritage Area. The overall impact is a huge success with over 1600 properties per

year controlling their weeds sustainably and without incident. This is an enormous support to our other Environmental Programs and makes maintenance of our reserves a far less expensive burden on our ratepayers. Additionally it benefits the community by maintaining property values and reducing health and vermin risks associated with weed infestations.

WEEDS LIST – BLUE MOUNTAINS BETTER LIVING DCP 2005⁶

This is the most current weed list formally adopted by Blue Mountains City Council. It is proposed in this updated strategy that the weed species on this list be reassessed and a process introduced to allow the list to be periodically updated (see Species Risk Assessment p: 39; Strategic Objectives 1.2a p: 46).

The list is also downloadable on Council's website as Part F (2) at:

<http://www.bmcc.nsw.gov.au/yourcouncil/policiesplansandstrategies/developmentcontrolplans/betterlivingdcp>

Common name *Botanical name*

TREES

African Olive *Olea europaea* spp. *africana*
 Bird Cherry *Prunus serotina*
 Black Locust *Robinia pseudoacacia*
 Box Elder Maple *Acer negundo*
 Camphor Laurel *Cinnamomum camphora*
 Cherry Laurel *Prunus laurocerasus*
 Chinese Pistachio *Pistachia chinensis*
 Coral Tree *Erythrina crista-galli*, *E. x sykesii*
 Cootamundra Wattle *Acacia baileyana*
 European Nettle Tree *Celtis australis*
 Himalayan Strawberry Tree *Cornus capitata*
 Holly *Ilex aquifolium*
 Honey Locust *Gleditsia triacanthos*
 Irish Strawberry Tree *Arbutus unedo*
 Large-leaf privet *Ligustrum lucidum*
 Miconia *Miconia calvenscens*
 Mexican Pine *Pinus patula*
 New Zealand Pittosporum *Pittosporum eugenoides*
 Portuguese Laurel *Prunus lusitanica*
 Qld Silver Wattle *Acacia podalyriifolia*
 Radiata Pine, Monterey Pine *Pinus radiata*
 Rhus Tree *Toxicodendron succedaneum*
 Sycamore Maple *Acer pseudoplatanus*
 Tree Lucerne/Tagasaste *Chamaecytisus palmensis*
 Tree-of-Heaven *Ailanthus altissima*
 White Poplar *Populus alba*
 Willows *All Salix* spp. except *Salix babylonica*, *S x reichardii*, *S. x calodendron*

SHRUBS

African Boxthorn *Lycium ferocissimum*
 Barberry, Berberis *Berberis aristata*, *B. darwinii*
 Boneseed, Bitou Bush *Chrysanthemoides monilifera*
 Blackberry *Rubus fruticosus* L. agg.
 Broom *Genista linifolia*
 Butterfly Bush *Buddleja davidii*

⁶ Refer Sec:1.4- Weeds, Planning and Development Assessment & Approval Process; Sec: 2- Issue: 9, Target 1- Species Risk Assessment

Cape Broom/
 Montpellier Broom *Genista monspessulana*
 Cassia *Senna pendula* var *glabrata*
 Castor Oil Plant *Ricinus communis*
 Cestrum—Red flowering *Cestrum elegans*
 Cotoneaster *Cotoneaster franchettii*, *C.*
lacteus, *C. pannosus*,
C. glaucophyllus
 Firethorn *Pyracantha* spp.
 Golden Wreath Wattle *Acacia saligna*
 Gorse *Ulex europaeus*
 Green Cestrum *Cestrum parqui*
 Hawthorn *Crataegus monogyna*
 Himalayan Honeysuckle *Leycesteria formosa*
 Indian Hawthorn *Raphiolepis indica*
 Karo *Pittosporum crassifolium*
 Karoo Thorn *Acacia karoo*
 Lantana *Lantana camara*
 Madiera Winter Cherry *Solanum pseudocapsicum*
 Mickey Mouse Plant *Ochna serrulata*
 Sacred Bamboo *Nandina domestica*
 Scotch/English Broom *Cytisus scoparius*
 Scurf Pea *Psoralea pinnata*
 Siam Weed *Chromolaena odorata*
 Small-leaf Privet *Ligustrum sinense*
 Spanish Heath *Erica lusitanica*
 Sweet Pea Shrub *Polygala myrtifolia*
 Tree Heath *Erica arborea*
 Tutsan *Hypericum androsaemum*
 Wild Tobacco *Solanum mauritianum*

VINES

Balloon Vine *Cardiospermum grandiflorum*
 Black-eyed Susan *Thunbergia alata*
 Blue-bell Creeper *Sollya heterophylla*
 Bridal Creeper *Asparagus asparagoides*
 Cape Ivy *Delairea odorata*
 Cats Claw Creeper *Macfadyena unguis-cati*
 Dodder *Cuscuta campestris*
 English Ivy *Hedera helix*
 Japanese Honeysuckle *Lonicera japonica*
 Madeira Vine *Anredera cordifolia*
 Morning Glory *Ipomoea indica*
 Moth Vine *Araujia sericifera*
 Passionfruit (Common, *Passiflora edulis*, *P. mollisina*,
 Banana, White) *P. subpeltata*
 Turkey Rhubarb *Acetosa sagittata*
 White Jasmine *Jasminum polyanthum*

PERENNIALS AND GROUND COVERS

Alligator Weed *Alternanthera philoxeroides*
 Asparagus Fern *Asparagus aethiopicus*
 Asthma Weed *Parietaria judaica*
 Bathurst/Noogoora/ *Xanthium* spp.
 Californian Burr

Black Knapweed *Centaurea nigra*
 Blue Periwinkle *Vinca major*
 Broomrapes *Orobanche spp.*
 Coreopsis *Coreopsis lanceolata*
 Creeping Buttercup *Ranunculus repens*
 Creeping Lantana *Lantana montevidensis*
 Crofton Weed *Ageratina adenophora*
 Fennel *Foeniculum vulgare*
 Fireweed *Senecio madagascariensis*
 Forget Me Not *Myosotis sylvatica*
 Hawkweeds *Hieracium spp.*
 Horsetail *Equisetum arvense*
 Impatiens/Busy Lizzy *Impatiens balsamina*
 Japanese Knotweed *Persicaria capitata*
 Kochia *Kochia scoparia*
 London's Pride *Saxifraga umbrosa*
 Mistflower *Ageratina riparia*
 Nasturtium *Tropoleum majus*
 Ox-eyed Daisy *Leucanthemum vulgare*
 Parthenium Weed *Parthenium hysterophorus*
 Patersons Curse/
 Viper Bugloss *Echium spp.*
 Red Hot Poker *Kniphofia sp.*
 Seaside Daisy *Erigeron karvinskianus*
 Self Heal *Prunella vulgaris*
 Spotted Knapweed *Centaurea maculosa*
 St Johns Wort *Hypericum perforatum*
 Veldt Daisy *Osteospermum ecklonis*
 Wandering Jew *Tradescantia fluminensis*

LILIES AND LILY LIKE PLANTS

Agapanthus *Agapanthus praecox ssp. orientalis*
 Arum Calla Lily *Zantedeschia aethiopica*
 Canna Lily *Canna indica*
 Day Lily *Hemerocallis spp.*
 Formosan Lily *Lilium formosanum*
 Ginger Lily *Hedychium gardnerianum*
 Montbretia *Crocasmia x crocosmiiflora*
 Peruvian Lily *Alstroemeria aurea*
 Watsonia *Watsonia meriana* "bulbillifera"

GRASSES AND GRASS LIKE PLANTS

African Lovegrass *Eragrostis curvula*
 Bamboo, Rhizomatous *Phyllostachys spp.*
 Brown Top Bent *Agrostis cappillaris*
 Columbus Grass *Sorghum x alnum*
 Cocksfoot *Dactylis glomerata*
 Creeping Bent *Agrostis stolonifera*
 Ehrharta *Ehrharta erecta*
 Giant Parramatta Grass *Sporobolus fertilis syn.indicus*
 Giant Reed *Arundo donax*
 Johnson Grass *Sorghum halepense*

PRIORITY SUBCATCHMENT LANDSCAPE SELECTION PROCESS⁷

There are 46 subcatchments in the Blue Mountains LGA. The flows from these subcatchments run into the surrounding National Park through approximately 12,000 hectares of Council and Crown bushland and large areas of Environmental Protection (EP) zoned private lands.

In order to rationalise the investment of Council resources for ecological restoration works priority subcatchments are identified in which integrated weed control, habitat restoration and erosion control works are concentrated throughout the private and public lands for a given period. After the initial period of intensive rehabilitation each subcatchment becomes part of Council's on-going maintenance program and a new area is targeted for intensive investment. This is generally approached through linking adjoining subcatchments into a larger target landscape

Originally 12 subcatchments were identified under the NSW government funded Urban Runoff Control (URCP) program (1996-2000) based on the following criteria:

- the use of the catchment by the community for recreation;
- the fact that the extent of problems caused by urban runoff was beyond the ability of the BMCC to resource and manage;
- interest by the community in the catchments , such as the existence of or willingness to form Bushcare groups; and
- the ability for remedial works to have a sizeable reduction in the environmental impacts of urban runoff within three years.

Current selection of priority subcatchments for intensive, integrated works is based on a balance of the following factors:

- High conservation values – the bushland in the catchment contains scheduled vegetation communities;
- Existing impacts which are causing severe degradation of bushland and ecological values;
- Previous investment in ongoing restoration works in part or all of the catchment , including URCP works , grant funded projects and Council works for which additional works will return high cost benefits; and
- Community values and investment primarily reflected in the presence of Bushcare and Landcare groups in the catchment.

Council is currently updating the priority subcatchment selection process to also take into account the following considerations:

- Results of Council's annual aquatic macroinvertebrate monitoring program - e.g. catchments with high aquatic macroinvertebrate biodiversity and intact macroinvertebrate assemblages will be given high priority;
- Fluvial geomorphological assessments - e.g. using the River Styles approach to assess the type, condition and recovery potential of waterways, and targeting remediation/ restoration/ conservation efforts where they will have the most benefit; and
- Desktop assessments/ mapping/ modelling - e.g. looking at the percentage effective imperviousness* of each catchment and targeting on-ground responses accordingly.

*(*effective imperviousness = the proportion of a catchment that is covered by impervious surfaces that are directly connected to natural waterways via pipes)*

⁷ Refer Sec: 1.2- Noxious weeds legislation, Private property inspections; Sec;2, Issue 9, National Target 2 – Integrated works in priority sub-catchments

CONSERVATION ASSETS IN EACH LANDSCAPE UNIT⁸***Flora and Fauna Conservation values being protected in the Granite – Sandstone Conservation Landscapes of the Megalong Valley***

- *Melaleuca* "Megalong Valley"
- *Melaleuca styphelioides* – *M. linariifolia* Forest
- *Ceratopetalum apetalum*-*Doryphora sassafras* Rainforest
- Megalong Granite Dry Rainforest
- *Casuarina cunninghamiana* River Oak Forest
- Megalong Riparian Granite Slopes Forest
- Megalong Foothills Forest Complex
- Megalong Granite Forest/Woodland
- Kowmung Wilderness Complex
- Redgum Swamp Woodland
- Blue Mountains Heath and Scrub
- Blue Mountains Riparian complex
- Blue Mountains escarpment complex
- Localised threatened species habitats

Flora and Fauna Conservation values being protected in Moist Basalt Cap Conservation Landscapes

- *Ceratopetalum apetalum*-*Doryphora sassafras* Rainforest
- *Eucalyptus viminalis* - *E. blaxlandii* - *E. radiata* (Moist Basalt Cap Forest)
- Pagoda Rock Complex
- Blue Mountains Riparian complex
- Blue Mountains escarpment complex
- Localised threatened species habitats

Flora and Fauna Conservation values being protected in the Blue Mountains Sandstone Plateau Conservation Landscape

- *Ceratopetalum apetalum*-*Doryphora sassafras* Rainforest
- *Eucalyptus deanei*- *E. piperita* Tall Open Forest
- *Eucalyptus cypellocarpa*- *E. piperita* Tall Open Forest
- *Eucalyptus oreades* Open Forest
- *Eucalyptus dalrympleana* – *E. piperita* Tall Open Forest
- *Eucalyptus radiata ssp. radiata* – *E. piperita* Open Forest
- Montane Gully Forest
- *Eucalyptus gullickii* Alluvial Woodland
- Blue Mountains Swamps
- Blue Mountains Heath and Scrub
- Blue Mountains Riparian complex
- Blue Mountains escarpment complex
- Localised threatened species habitats

Flora and Fauna Conservation values being protected in the lower Blue Mountains Shale – Sandstone Conservation Landscapes

- *Backhousia myrtifolia*- *Ceratopetalum apetalum* Rainforest
- Blue Mountains Shale Cap Forest
- Shale/ Sandstone Transition Forest
- Turpentine- Ironbark Forest
- *Eucalyptus amplifolia* Tall Open Forest

⁸ Refer THE WEED MANAGEMENT AREA; Sec:2, Issue 1; Sec:2, Issue 9, National Target 2- Protect high value assets; Sec:3.2, Strategic Objective 1.1a

- Blue Gum (*E. deanei*) Riverflat Forest
- *Melaleuca linariifolia* Low Open Forest
- *Eucalyptus sclerophylla* Bench Woodland
- Blue Mountains Swamps
- Blue Mountains Heath and Scrub
- Blue Mountains Riparian complex
- Lagoon Vegetation (Glenbrook Lagoon)
- Localised threatened species habitats

LARGE SCALE CLEARING OF WEEDS⁹

The initial or primary work of controlling weeds currently represents only a small proportion of the total work carried out by Council's Weed Control Teams. This work involves the large-scale removal of mature, usually large, weeds. In bush regeneration this primary work represents as little as 10% of the total works.

The balance and most critical phase of Weed Control work involves managing the process of secondary succession – or managing plant species that recolonise an area after primary weeds are removed, so that the resultant final stage or climax plant community is representative of and in equilibrium with the surrounding environment.

Privet is a good example. The natural temptation is to cut it down (primary control) on the assumption this is good for the environment, and native plants will recolonise the area. However, the most likely scenario after initial clearing is mass regrowth of more Privet (a dense carpet of up to 800 seedlings/m²), other aggressive and visually less appealing grasses or weeds like Fleabane, with an occasional seedling native plant.

Secondary weed control involves the long-term process of encouraging these native plant seedlings to dominate the site, whilst controlling the weed species. Primary weed control may take just a few hours, secondary control may take many years, depending on the severity of weed infestation, but will ultimately determine the quantity, quality, and type of vegetation that finally re-establishes itself on a weed-reduced site.

If Council were to invest all of its weed resources in primary control, the Blue Mountains environment would look very different to what we see today. In the short term, up to six months depending on the season and location, the visual impact would be enormous and deceptively positive. Four to five times the area currently managed could be given primary treatment, and the "walls of weeds" seen around the City could be removed.

In the medium term, three months to three years, the "walls of weeds" would return. Many of the most common weeds such as Privet have seed viability of two or three years. Some weeds such as Scotch Broom have seed viability of up to 80 years. These seeds will remain in the soil after primary weed control and will germinate rapidly. Without secondary control these weeds will re-infest the area, often more thickly than the original infestation. In addition, through a process known as weed succession, other aggressive weeds will move in. Bird and wind spread species such as Holly, Cotoneaster, Lantana and Box Elder and many exotic grasses and annual weeds will quickly colonise these disturbed areas.

The long-term impacts of a "primary work only" approach would be to:

- Promote the further spread of many noxious and environmental weed species;
- Increase the density of weed infestations;
- Reduce natural biodiversity of the Blue Mountains, particularly close to houses;
- Reduce the efficacy of the bush regeneration team to control noxious weeds;
- Reduce Council's capacity to maintain areas in which it has invested years of work;
- Limit Council's ability to respond to Customer Service Requests on a priority environmental weed basis; and
- Increase community expectations on Council to control all weeds.

⁹ Refer Sec:2, Issue 4; Sec:2, Issue 9, National Target 1- Target weed programs

CASE STUDY- HAWKESBURY NEPEAN CMA MODEL PROJECT- MEGALONG VALLEY¹⁰

(from Hawkesbury- Nepean Weed Management Strategy, 2009)

Region E: North western part of the HN catchment

Blackberry Control Project, Megalong Valley, Cox's River

Funding: CMA Riparian and Terrestrial Biodiversity grants

Partners: CMA, BMCC, I&I NSW (was DPI), Livestock Health and Pest Authority (was RLPB), local Landcare group, private landholders

Location: Megalong Valley

Nature of project: Targeted blackberry along creeklines and adjacent paddocks in Cox's River subcatchments.

Long-time residents provide weed control knowledge in this landscape.

Informal network supports effective control, stresses need for follow-up.

Social pressure on other landholders, regulatory pressure from Council.

Notes: Project demonstrates partnerships between new and long standing landholders in developing integrated management of riparian zones including pasture management and bush regeneration in remnant veg. along creeks. Uses local knowledge and follow-up.

Cost: 7 properties, grants of \$25 – 30K matched 1:1 or 3:1 by landowners

How it worked: Property management planning and assistance with grant applications offered as a free service by BMCC Community Weeds Officer to signed on landholders, focus on weed management and involving noxious weed officers to emphasise legal responsibility of landowners for control.

Links: Knowledge based on experience of local residents, DPI and BMCC officers for integrated program

Results: 10 km of creeklines in one subcatchment of Cox's River treated for blackberry (one season control plus one season follow-up) using contract spraying (by local experienced operators) and bush regeneration. RLPB also involved with feral animal control (rabbits and pigs) and harbour eradication.

¹⁰ Refer Sec:2, Issue 2- Other land & natural resource managers; Sec:2, Issue 3; Sec:2, Issue 8, Private land extension- Rural Practice Improvements;

**CASE STUDY - NORTH KATOOMBA BROOM BLITZ
COORDINATED SUBCATCHMENT WORK IN KATOOMBA AND GOVETTS CREEKS
(January 2004 – May 2008)¹¹**

Scotch Broom (*Cytisus scoparius*) is a highly invasive exotic plant, capable of producing up to 6000 seeds each year, some of which can remain viable, lying dormant in the soil, for up to 70 years. Broom escapes from many gardens when the seeds are explosively ejected from the plants and then washed down creeks in to adjacent bushland where they displace native species and dramatically reduce biodiversity.

In December 2002 bushfires in the North Katoomba area left creekbanks bare of native groundcover and stimulated the germination of Scotch Broom seeds which had evidently been accumulating in the soil for many years.

Members of two North Katoomba Bushcare groups, Katoomba Creek and Minne Ha Ha Falls, became concerned that the Katoomba and Govetts Creek areas, immediately upstream of the Grose Valley, would quickly become a forest of Scotch Broom and spread into the valley.

They identified 10.8 kms of creekline and 4.4 kms of buffer area which needed urgent attention.

In January 2004 Bushcare members joined with another 2 groups in the subcatchment to raise the alarm and press for urgent action to remove the estimated 6 million Broom seedlings that were springing up after the fire. They approached local State and Federal members to obtain funds to carry out the work needed over the next 3 years. With the assistance of a Bushcare officer, they approached Council, which was able to direct resources to this project within months.

Meetings were held with National Parks (NPWS), the NSW Department of Lands, the 4 bushcare groups and each of the sections of council involved to ensure coordinated efforts. Council funded the development of a work strategy which directed priorities and formed the basis of grant applications.

The combined efforts of Council, National Parks and community enabled the urgent goal to be largely achieved by the end of the first year, which was to prevent any Broom plants achieve maturity and hence produce more seed.

Council put its own bush regeneration teams into the areas, funded contractors to work other areas and applied for grant funding.

Council also supported the bushcare groups in running special "Broom Blitz" events in the upper catchment areas. Members of groups helped each other out attending their bushcare days.

NPWS supported "combined bushwalking clubs weeding days" with bushwalkers from the National Parks Association, Springwood Bushwalkers, Blue Mountains Conservation Society, and the Upper Blue Mountains Bushwalking Club.

NPWS was also able to redirect grant funding and its Great Grose Weed Walk program to this urgent work.

A major source of weeds along the affected creekbanks was the private properties in the upper catchment. Council involvement was therefore extended to include working with private property owners in the identified target area.

Mountain Living courses were run to introduce residents to the environmental issues affecting their catchment and provide them with information and skills to reduce their impacts. In 2004- 2006, 21 properties received incentive grants through a NSW Environmental Trust project and additional funding

¹¹ Sec:2, Issue 2- National Parks; Sec:3.2, Strategic Objective 5.2c

from the Hawkesbury Nepean Catchment Management Authority. This funding was used to install fencing and planting to protect creeklines and target weed control in high value swamps and other bushland on private lands. The Noxious Weeds team targeted the area providing landholders with advice on weed control and where necessary issuing notices.

The four year strategy was carried out with NPWS and BMCC eventually gaining more significant funding. Whilst Broom was the main problem, there were other weeds which were treated including Small leaved Privet, Indian Barberry, Japanese Honeysuckle, Blackberry, Himalayan Honeysuckle, Tutsan (*Hypericum androsaemum* and *H. kouytchense*), Cherry Laurel, Cotoneaster, English Ivy, Grey Sallow, Holly, Montbretia and Spanish Heath.

This enormous effort by both volunteer and professional bush regenerators who have together spent over 19,354 hours working on this project (between January 2004 and May 2008) resulted in more than the original estimated 6 million weed plants being treated. Almost 28% of this time (5393 hours) was contributed by volunteers.

Whilst some people participated 'once only' most of the effort was contributed by people who continued to work in the area over many years on a monthly or a weekly basis, developing their knowledge.

Although it appears a huge number of hours have been spent in the project, it has been extremely cost effective because of the combined knowledge of those directing activities and those working on the ground.

Their efforts have been extremely productive – mature Broom plants have been removed before they flowered, preventing all but a few from setting more seed since December 2002. All other woody weeds have been treated in the original target area, except for the least intact upper catchment sections. Comprehensive work has been carried out in all the remote areas. Good regeneration of native plants is occurring throughout.

Although it was initially hoped that the 2002 fire may have triggered the germination of all the Broom seeds stored in the soil, further germination continued over the next 4 years. . More follow up work will be needed to make sure all these more recently germinated plants are treated before they flower and produce seed in following years.

Coordination meetings of community, Council and National Park staff in the North Katoomba Working group continue about every 6 months to check on progress and identify gaps in the ongoing strategy.

Blue Mountains Living – More Than Just an Address¹²

Blue Mountains residents have the opportunity to participate in a unique program designed just for them, based on sustainable living and property management. The Blue Mountains Living course focuses on community engagement and aims to empower locals to live sustainably within such a special area. The course (2-days over 2 weekends) is offered to residents of catchments in which Council is investing in significant works to restore bushland or address urban stormwater impacts. All lands in a catchment are connected so the long term success of works on public land is directly affected by how the surrounding residential properties are managed.

Mountain Living is aimed at an integrated approach to bring together the individual issues which impact on both the catchment and community. It was developed by Council's Environmental Management team. Residents are able to explore waste avoidance and recycling, composting and eco gardening, non-toxic cleaning, environmental weed identification and control, habitat creation, stormwater management, water saving and creek protection. All aspects of the course are related to features of the local catchment which allows the participants to make direct links between the management of their properties and impacts on the creeklines and bushland they are familiar with. Recently, a 'Sense of Place' component was added to the course which explores our local Aboriginal history and culture with local Aboriginal community members sharing their knowledge of the Blue Mountains.

It's hands-on and highly practical including demonstrations on composting, worm farming and building a no-dig garden. Participants are also taken on a catchment tour in their own neighbourhood - looking at where urban living impacts on local creeklines and bushland. Special features of the native vegetation and fauna in their area are highlighted so that residents can get to know more about the place they live in. Council's stormwater and sediment control structures and the activities of local Bushcare groups are also examined and related to what can be done on a private property to protect and restore native habitat.

A direct outcome of the course for participants is the development of individual property plans which include mapping features related to weeds, stormwater, waste avoidance and water saving practices. Using this tool, residents can develop ways to implement sustainable lifestyle choices and identify how those choices affect the catchment. Participants all receive a manual including specific information on where their property is in the catchment. The course is followed up by individual site visits to provide on-ground advice and training in application of the principles outlined to resident's own properties. Target catchments to date have included North Katoomba, Wentworth Falls, Glenbrook, Springwood/Winnalee and Hazelbrook – residents in target catchments receive information about upcoming courses in their letterbox.

Although the 2 day Mountain Living course is only offered to residents in target catchments it is expected that over time all Blue Mountains residents will be offered a chance to participate. Meanwhile other services provided by Council to help residents to live more sustainably in their catchments include weed control and bushland management advice from the Community Weeds Officer, regular Eco- Choices courses offered throughout the mountains and Council support of Bushcare and Landcare groups.

¹² Refer Sec:2, Issue 8, Private land extension- Resident weed support service; Sec:3.2- Strategic Objectives 5.1 & 5.2a

Bush regeneration – The Australian Natural Heritage Charter defines bush regeneration as “the natural recovery of natural integrity following disturbance or degradation where *natural integrity* means the degree to which a place or ecosystem retains its natural biodiversity and geodiversity and other natural processes and characteristics”.

The National Trust’s Bush Regenerators’ Handbook defines bush regeneration as “to restore and maintain an ecosystem in which natural regeneration can occur”.

Bush regeneration aims to restore an ecosystem using processes of natural regeneration to repair a degraded, weed infested plant community and return it to a healthy native community. It generally aims to treat sites in a more holistic manner than target weed control programs. Bush regeneration can be complemented by revegetation programs using endemic species where site disturbance is very high.

There are three stages to bush regeneration:

- primary works, which involve the initial substantial clearing of weeds and mitigation of other degrading impacts such as erosion and sedimentation;
- secondary, which involves the follow up clearing of remaining weeds; and
- maintenance works, or continuing care of a site until it becomes self-sustaining.

Ecological restoration – the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed,

Ecosystem means a dynamic complex of plant, animal, fungal and micro-organism communities and associated non-living environment interacting as an ecological unit.

Ecosystem transformers – weed species which can dominate and destroy a native vegetation community very quickly (10 years). These species pose a high level threat to ecosystem function (Mulvaney, 1997).

Ecological community is an assemblage of species occupying a particular area.

‘**Endangered ecological community**’ is defined under the Threatened Species Conservation Act.

Environmental Weed- Environmental weeds are plants that invade native ecosystems and adversely affect the survival of indigenous flora and fauna. Environmental weeds can be foreign plants accidentally or intentionally introduced into Australia, or they can be native plants from other regions of Australia which have been planted outside of their normal range.

Invasives (weeds) – weed species which are highly mobile within a native vegetation community but do not have the immediate potential to alter it (Mulvaney, 1997). These species generally pose a medium to long term threat to ecosystem function.

Naturalisers – weed species which reside mainly on the edge of native vegetation communities and have little potential to be highly invasive or ecosystem transforming (Mulvaney, 1997). These species pose a low level threat to relatively undisturbed ecosystems but can significantly impede natural regeneration in some circumstances.

Noxious Weed – a declared plant proclaimed as a noxious weed by Order of the Minister for Primary Industries under the Noxious Weeds Act 1993. The *Noxious Weeds Act 1993* declares and classifies plants which are a danger to human health, serious economic pests, and invaders of natural systems. Owners and occupiers of property in the City of Blue Mountains are obliged to comply with this Act.

Priority Sub-Catchment Landscape - Current selection of priority sub-catchment landscapes for intensive, integrated works in Blue Mountains City Council environmental management programs is based on a balance of the following factors:

- High conservation values – the bushland in the catchment contains scheduled vegetation communities;
- Existing impacts which are causing severe degradation of bushland and ecological values;
- Previous investment in ongoing restoration works in part or all of the catchment , including URCP works , grant funded projects and Council works for which additional works will return high cost benefits; and
- Community values and investment primarily reflected in the presence of Bushcare and Landcare groups in the catchment.

Scheduled vegetation communities:

Vegetation communities have been scheduled as significant within the City of Blue Mountains if they satisfy one or more of the following criteria:

- listed, or proposed for listing, in the Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth);
- listed, or proposed for listing, in Schedule 1 or 2 of the Threatened Species Conservation Act 1995 (NSW);
- listed in Schedule 3 of LEP 1991;
- rare and/or restricted distribution within the City of Blue Mountains;
- poorly or not represented within the Blue Mountains National Park;
- protect hydrological functions; and/or
- habitat for rare, threatened or ultra-endemic fauna or flora species.

Target weed control – strategy which focuses control efforts on a specific identified high threat weed species.

Threatened species, populations or ecological communities means species, populations or ecological communities specified in Schedule 1 or 2 of the NSW Threatened Species Conservation Act 1995 and / or listed as vulnerable, threatened or endangered under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.

Urban runoff - surface runoff from developed areas. With progressive development and the resulting increase in impervious areas, there is an increase in the quantity and rate of stormwater run-off during a rainfall event. These surges of runoff cause creekbank erosion and downstream sedimentation. The high volume flows also carry sediment, nutrients, weed seed and other pollutants from urban areas into bushland and creek lines. The result is long term degrading impacts including loss of instream habitat, weed invasion and subsequent loss of biodiversity and resilience as systems lose their capacity to buffer stormwater impacts.

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